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THE AGEING WORKFORCE IN IRELAND WORKING CONDITIONS, HEALTH AND EXTENDING WORKING LIVES

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GLOSSARY

Early leavers	We define early leavers as those currently out of work, who left employment in the last 8 years, and who were aged 55-59 when they left.
LFS	Labour Force Survey
Multinomial logistic regression	This method of estimation compares the likelihood of experiencing one categorical outcome over another (like job loss relative to early retirement). The term multinomial refers to more than two outcomes that cannot be ordered meaningfully (there are no 'greater than' or 'less than' categories). It is a method of observing covariance and correlation between outcomes (like job loss or retirement), controlling for a range of other measures (gender differences with similar ages).
Odds ratio	An odds ratio is an estimated risk of an outcome occurring within a group, relative to another group (men and women have different odds ratios of leaving work to care for children). An odds ratio greater than 1 suggests that the group has a higher chance of experiencing an outcome relative to the reference group. An odds ratio of less than 1 suggests the group has a lower risk of seeing an outcome, relative to the reference group.
Older workers	There is no single definition of older workers. For our analysis, we focus on workers aged 55 and over who are either employed or self-employed.
Retention rates	We adopt the OECD measure retention rates by focusing on employees aged 60–64 with job tenure of five years or more as a percentage of all employees aged 55–59 five years previously.
Statistical significance	An estimate of the relationship between variables (such as age and the chances of illness or injury) is significant if the p-value associated with the estimate is less than 0.05. A p-value is the probability of gaining an estimate as extreme as the one recorded, in a scenario where no relationship exists between measures. A value of .05 means there is less than a 5 per cent chance that the difference found is due to chance alone.

EXECUTIVE SUMMARY

Extending working lives is a central element of active ageing policy in Ireland and Europe, and is seen as promoting active lifestyles and sustaining social protection systems in the context of an ageing population. However, efforts to extend working life must consider the reasons why workers leave employment early. Simply raising the minimum retirement age will not build sustainable jobs. A central element of this picture is the health and working conditions faced by older workers.

This project explores the retention of older workers in Ireland, drawing on several sources of data to describe their experience in the Irish labour market. While there is no official age threshold to classify a worker as an older worker, the literature on ageing workforce often focuses on workers aged 55 and over.¹ In Ireland, according to the 2018 Labour Force Survey, there are currently 396,060 workers in this age category, accounting for 18 per cent of the employed population.

We set out to explore the following questions:

- How do the working conditions and the health of older workers compare to those of younger workers?
- What types of jobs and working conditions are associated with perceived ability to work longer?
- Which sectors and occupations are best able to retain older workers?
- Among those who exit early (aged 55–59 years), what are their reasons for leaving work?
- Are older workers more vulnerable to fatal injury in the workforce? Are they embedded in sectors prone to injury?

KEY FINDINGS: OLDER WORKERS, WORKING CONDITIONS AND HEALTH

A recent international review of health and safety issues among older workers by the European Agency for Safety and Health at Work (EU-OSHA, 2016a) emphasised that chronological age is a poor predictor of biological age and productivity: there is a high degree of variation in the health status of older age groups and this is partly due to cumulative effects across the life course, including earlier work

¹ Eurofound (2008), Working conditions of an ageing workforce, Office for Official Publications of the European Communities, Luxembourg.

experience. Moreover, the authors conclude that there is little evidence that ageing is associated with a decline in productivity since older workers compensate for deterioration in some physical functioning through greater experience and skill. Further, adjustments to work practices and environment can minimise such impacts.

Older workers occupy a substantial proportion of the Irish labour force (almost 20 per cent); this share has grown in the last ten years and become especially important due to a fall in the labour force participation of younger workers. Older workers are over-represented in certain industries such as agriculture and private services, and are particularly likely to be self-employed.

On average, older workers have equal or better working conditions than workers under 55 on many indicators. They are unlikely to work in shifts, or to work nights. Further, older workers experience lower rates of non-fatal injury, and lower levels of work-related stress, anxiety and depression, and are more likely to claim that work has a positive impact on their health than workers under 55. Older workers are the least likely age group to consider their health 'at risk' because of work, and are the age group most satisfied with their health overall.

More negatively, older workers (especially those over 65 years) have a higher rate of temporary employment than those under 55 years of age, while those aged 55 to 65 experience a higher rate of work-related illness. Since these measures are often associated with workplaces that contain worse health and safety outcomes, they warrant further attention. There is also some polarisation in working hours, with older workers more likely to work very short or very long hours.

Lastly, we find that older workers are, on average, quite optimistic about the longevity of their job, i.e. the ability to work in the current or similar job at age 60; or for the next five years. However, there are strong occupational differences in the perceived longevity of employment. Service workers, craft workers, and elementary workers are most pessimistic about their ability to work longer.

KEY FINDINGS: RETENTION OF OLDER WORKERS

We find that worker retention, i.e. the proportion of workers aged 55 to 59 that are retained in employment at age 60 to 64 years, depends on the occupation or sector of older workers. Compared to the rest of the OECD, Ireland has a higher retention rate of older workers. In 2015 the retention rate for employees aged 60 to 64 was 58 per cent in Ireland compared to 49 per cent across the OECD (Martin,

2018). Including employees and the self-employed, we find that Ireland's retention rate has also increased steadily since 2012, from 55 per cent to 71 per cent in 2018. The increase is notable for both men and women, and rates are highest in construction and agriculture when both self-employed and employed respondents are considered together.

Among employees only, retention rates are highest among the public sector and other administrative sectors, which typically provide non-manual jobs. Across occupations, retention is highest among machine operators and craft workers. We find that retention rates are low among professionals, which is likely to reflect access to higher pensions and greater financial security, which allows early retirement. To explore the processes involved, we move from the aggregate retention rates to analysis of individual-level reasons for exiting employment.

Despite high retention rates, a key group of early leavers (aged 54 to 59) exists in Ireland. To explore their reasons for leaving, we use data from the Labour Force Survey. Early leavers cite four main reasons for exit: retirement, dismissal or redundancy, caring responsibilities, and illness or disability. We compare group differences in experiencing non-retirement forms of exit to early retirement, using multinomial logistic regression.

There are significant occupational and sectoral differences between those who retire early and those who leave for non-retirement reasons. Regarding occupations, leavers who previously held manual jobs are more likely to have left for non-retirement than retirement reasons, compared to managers. Technicians and professionals had similar odds to managers in their likelihood of leaving for non-retirement reasons. There are also sectoral differences in the type of exit experienced by early leavers. Private-sector workers, especially those in construction and retail, are more likely to leave for non-retirement than retirement reasons, when compared to the industry sector. However, leavers from public administration were more likely to leave for retirement reasons than non-retirement reasons. Our findings suggest that occupational differences in early retirement may stem from adequate income and financial security, which typically correlates with occupational level.

There are few gender differences in the reason for leaving early. Female leavers had similar odds of leaving for non-retirement reasons, compared to retirement reasons, as men. The only exception is early leave for family care reasons, where women were five times more likely to leave employment for family care as men. This suggests that care obligations for family members are particularly likely to

affect women's decision to leave work early; further, working lives cannot be extended without some acknowledgement of women's disproportionate role in providing care.

Results also suggest that an age effect exists in every model predicting non-retirement leave. Among early leavers (respondents aged 55 to 59), those aged 55 or 56 have a greater chance of experiencing job loss, illness or disability, or leave tied to care than of experiencing early retirement. Older leavers aged 58 or 59 are more likely to cite early retirement, even when controlling for occupation or industry. In this way, non-retirement factors that push people to exit in their 50s are most common among 'younger' early leavers than older ones. Thus, extending working lives will require earlier intervention in the later stages of respondents' careers; this also applies to those exiting before age 55 who are not included in these models.

KEY FINDINGS: INJURIES AND FATALITIES AT WORK

Fatality at work is rare, but fatality rates are higher among older workers and in the agriculture, construction and industry sectors. Combining data from 2004 to 2018, we find that higher fatality rates among older workers are not explained by sector, and that older workers are at greater risk of fatal injury in each sector examined. Controlling for sector, workers aged 55 to 64 are still almost two times more likely to experience a fatality than workers under 55, and workers over 65 are three and a half times more likely to experience a fatality, though the absolute risk of death remains very small.

We find that fatalities have declined since 2005 across all age groups, and in all sectors except agriculture. The combination of lower non-fatal injury rates and higher fatal injury rates among older workers is consistent with other studies which find that, though less common, accidents involving older workers are likely to result in more serious injuries, permanent disabilities or death than for younger workers (EU-OSHA, 2016a; Robertson and Tracy, 1998).

POLICY IMPLICATIONS

Extending working lives is identified as an important element of addressing the needs of an ageing population (DPER, 2016). The National Positive Ageing Strategy includes a commitment to improve employment options for older workers. While the employment rates of older workers have increased in recent years and retention rates are above the OECD average, in Ireland there is considerable scope to increase participation further.

Putting in place working conditions that allow workers to work healthily and safely is a key element of the policies needed to support longer working.²

While current conditions for older workers compare relatively favourably to those for younger workers, the findings are cross-sectional and thus may be affected by the ‘healthy worker’ effect. In other words, those workers who experienced poorer working conditions along the life course may already have left the labour market, so that those that remain employed are likely to be more advantaged. This life-course perspective is important as it means improvements to working conditions to make working longer sustainable are relevant for workers of all ages. We find that workers of all ages who feel their health and safety are at risk are less positive about the sustainability of their jobs. Therefore, minimising the risk of work-related injury and illness for all workers is likely to create an environment where longer working is possible. The higher risk of fatal injury among older workers within sectors is also of concern and may suggest a need to target information and safety interventions in the high-risk sectors, particularly agriculture.

We also find that those who experience an imbalance between work and other demands (including caring) are less likely to believe they can work longer. Women are much more likely than men to cite caring responsibilities as the reason for early exit. This points to the possibility that more flexible work arrangements will contribute to the retention of older workers, especially older women. Our analysis of perceived job longevity, retention rates, and reasons for leaving highlights the relationship between working conditions, workers’ health and ability to continue working. Involuntary job loss remains a significant factor in early exits, as do exits due to illness/disability and caring. This suggests that a multi-pronged policy response is necessary, including part-time hours and flexible work options, access to training/lifelong learning opportunities, organisational strategies to accommodate those with illness/disability and to rehabilitate those re-entering following an absence. The strong occupational and sectoral patterns in retention, reasons for early exit and fatalities suggest that interventions focused on particular industries and jobs may also prove fruitful.

² Pensions, social protection and healthcare policy are also crucial but beyond the scope of the current report.

CHAPTER 1

Introduction

1.1 OLDER WORKERS IN IRELAND

By 2031, it is forecast that at least 32 per cent of the labour force in Ireland will be aged over 50 years, up from 26 per cent in 2016.³ This rise is predicted on the basis of a global increase of the population of this age group but also to an increase of the labour-force participation of those aged over 50. Providing sustainable employment for older workers has been identified as a key issue for the economy and welfare state in Ireland and in the broader EU community (DPER, 2016; European Foundation, 2012). Moreover, it is recognised that working conditions, and their impact on health, are a critical factor in promoting the employment of older workers (EU-OSHA 2017).

The EU Strategic Framework on Health and Safety at Work 2014–2020 includes ‘taking account of the ageing of the EU’s workforce’ as one of the three major health and safety challenges over the period. Moreover, the European Agency for Safety and Health at Work has recently published a position paper that outlines the challenges in relation to the ageing workforce and has prioritised research on investigating the link between the employability of older workers and the impact of work on their health.⁴ Previous research in the HSA/ESRI programme has shown that older workers are at lower risk of work-related injuries, but have a higher rate of work-related illness, holding other factors equal (Russell et al., 2015, 2016). Despite lower rates of work-related injuries, there is a high concentration of fatalities among older workers. The HSA fatality statistics for 2017 show that 47 per cent of those in fatal workplace accidents were aged over 55.

In this report, we contribute to the debate on the ageing workforce and the role of working conditions and worker health and safety in extending working lives. We aim to identify the occupations and sectors of the economy and the working conditions that facilitate longer working and to highlight where there are persistent challenges.

³ CSO Population and Labour Force Projections 2017-2051, <https://www.cso.ie/en/releasesandpublications/ep/plfp/populationandlabourforceprojections2017-2051/>

⁴ EU-OSHA (2015), Position Paper 3: Health, Demographic Change and Wellbeing.

The report has four parts. First, we provide context on older workers' position in the Irish labour market, using national statistics. We also examine how the proportion of older workers in the economy has changed over the last decade, with Ireland's economic recovery. Second, we explore the working conditions of older workers using data from the Labour Force Survey (LFS) and the European Working Conditions Survey (EWCS). We ask whether Irish workers over the age of 55 hold sustainable positions in the market, or do they hold precarious or dangerous jobs? Third, we use the LFS to explore the retention rates of older workers, exploring industries and occupations that are best able to retain older workers. We are also able to analyse leavers using this data, exploring the characteristics of those who retire early, and their reasons for retiring early (which are available for those who left work in the last eight years) across occupations and sectors.

Lastly, given the over-representation of older workers among workplace fatalities, we explore whether this is driven by the sectoral distribution of older workers or if they face higher risks within sectors. Our access to HSA data from 2014 to 2017 gives us a unique opportunity to untangle the relationship between fatalities on one hand, and the age and sector of workers on the other, and to examine whether risks of fatal injuries among older workers have changed over time. The remainder of this chapter addresses key issues in discussions of the ageing workforce. In section 1.2, we discuss demographic changes. In section 1.3, we outline different concepts of ageing. In section 1.4, we summarise research on some of the main factors behind early exits from employment. This discussion is not exhaustive but concentrates on work-related factors or factors that are amenable to changes in working conditions. Section 1.5 focuses on the literature on ageing and worker health and safety to inform our subsequent analysis. Lastly, we explore age differences in health outcomes, as health emerges as an important push-factor noted by the literature.

1.2 DEMOGRAPHIC CHANGE

Irish life expectancy continues to increase, partly due to economic growth and partly due to the influence of health and welfare services. The CSO predicts that Ireland's older population (those aged over 65) will increase from 629,000 in 2016 to between 1.5 and 1.6 million in 2051.⁵ The latest ESRI projections suggest that life expectancy will rise to 83 for men and 87 for women by 2030 (Wren et al., 2017, central scenario).

⁵ <https://www.cso.ie/en/releasesandpublications/ep/p-plfp/populationandlabourforceprojections2017-2051/populationprojectionsresults/>

Although Ireland's population is quite young compared to other European countries, McCarthy (2010, p.6) suggests that 'by 2050 Ireland's population structure will be... similar to the rest of Europe'. If this convergence occurs, Ireland's pace of change will be far faster than the change currently experienced by mainland European countries.

Improvements in life expectancy are positive. However, population ageing brings a set of challenges including that of ensuring adequate income during retirement and striking a balance between the numbers paying into the taxation system and the numbers dependent on welfare supports (including state pensions). As a result, policymakers across Europe are encouraging older workers to remain employed. This will only be achieved if the push and pull factors of early exit from employment are addressed, and the conditions of senior workers are critically evaluated and improved. Simply raising the retirement age cannot guarantee longevity of working life (EU OSHA, 2016a). Before exploring the topic, it is worth considering three different perspectives on ageing found in the literature, and the policy conclusions these perspectives propose.

1.3 UNDERSTANDING AGEING

In researching ageing, it is useful to separate different meanings attached to the process. The first and most widely applied concept is that of *chronological ageing* (EU OSHA, 2016a; Nilsson, 2016). This is simply a respondent's age, and how near or far they are to some milestone such as mandatory retirement or adulthood (aged 18 or over). It is widely agreed that *chronological age* is associated with measures of health, but is not the most important determinant of health; nor is it a determinant of performance or ability (EU OSHA, 2016a; Börsch-Supan, 2013).

A separate conceptualisation of ageing is the process of *biological ageing*. Here, ageing is understood as a process of gradual change in functional characteristics or biomarkers. Biological age focuses on measurable signs of ageing, rather than a person's chronological age. In the case of older workers, relevant measures of biological ageing include dexterity, mobility, cognitive function and other health-related measures that may hinder or improve work efficiency. Biological ageing is correlated with *chronological ageing*, but varies considerably across individuals (EU OSHA, 2016a; Börsch-Supan, 2013). Typically, workers of a certain chronological age show signs of biological ageing, although this is not always the case. We return to this issue in section 1.5 below.

A third concept is *social ageing*. This refers to the social meaning of age and the expectations that society, including managers, co-workers and family attach to individuals based on chronological age. These are often shaped by perceptions and stereotypes of efficiency and ability tied to older and younger workers (Börsch-Supan, 2013). Social policies and institutions also shape these perceptions. Social ageing can lead to norms and expectations around retirement, forms of age-based discrimination, and exclusion. Despite older workers routinely displaying the same work capacity as younger workers, employers and managers often see them as less efficient and costlier (Karpinska et al., 2013; Börsch-Supan, 2013), most of these perceptions stem from *social ageing* biases. With these concepts in mind, we turn to the literature on early exit from work.

1.4 PUSH AND PULL FACTORS IN EARLY EXITS FROM EMPLOYMENT

The literature on early exits from work is extensive. In this report, we focus on factors that are work-related or potentially influenced by working conditions. We use the term *early exit* to denote exits that occur before the usual retirement age established through social norms or policy.

1.4.1 Health

Cross-sectional studies show a correlation between the health of older workers and their employment status. In Ireland (Mosca and Barrett, 2011) and across Europe (Barnay, 2006; Alavinia and Burdof, 2008) older workers with poor health have the lowest rates of employment.

Hudson et al. (2014) report that in Ireland ill-health was the second most common reason given for retiring (15 per cent), behind 'eligibility for pension' (42 per cent). The authors argue that the effect of push factors on the timing of retirement varies by social background. Ill health is a much more common reason for exiting employment among the most disadvantaged group (21 per cent cite ill health among those with either primary or no education compared to just 4 per cent of those with third-level or higher education). The most educated group were much more likely to cite voluntary reasons for exit: 23 per cent of this group retired 'to enjoy life' compared to 12 per cent of those in the lowest education group.

Longitudinal research shows that changes in health often lead to changes in employment status. Using longitudinal data for the UK, Disney et al. (2006) find that previous health status and recent health shocks have a significant effect on early exit, even when controlling for age, tenure and marital status. Tisch (2015) reports similar results using German panel data; finding that health impairments

in year one increase the chance of employment exit in subsequent years. The effect remains even when controlling for income, work motivation (or the desire to work), and the work status of the respondent's spouse.

These studies highlight that negative changes in health status increase the risk of early exit. They also suggest that the relationship between health and exit is mitigated by other measures, such as social class, occupation, and the working conditions of potential leavers. We turn to these issues next.

1.4.2 Working conditions

Related to issues of health, there is a correlation between poor working conditions and early exit among older workers (Barnay, 2006; Mosca and Barrett, 2011; Blekesaune and Solem, 2005). Perera et al. (2015) find that higher workloads, faster work pace, and greater responsibilities at work increase stress and the risk of early retirement. Blekesaune and Solem (2005) also show a link between low-autonomy jobs and early exit; further, they argue that workers in flexible jobs are especially able to continue working. As before, the authors hypothesise that this relationship disproportionately affects working-class respondents (from lower occupations), whereas respondents in upper occupations are exempt from the effect.

Warren and Kelloway (2010) also find that workers who cannot renegotiate their roles and cannot secure flexible working conditions are more likely to leave employment. Such early exits are also encouraged by managers and employers. Ng and Feldman (2013) and elsewhere Karpinska et al. (2013) show that supervisors and managers often consider older workers as less productive and costlier, and so encourage them to consider early retirement in order to replace these workers. Similarly, discriminatory practices at the organisational level can push older workers into retirement (Armstrong-Stassen and Schlosser, 2011). Börsch-Supan (2013) finds no objective evidence that older workers are less productive, and suggests that the perception is a myth.

1.4.3 Caring responsibilities

Caring responsibilities for spouses, grandchildren or others can lead to early exits among older workers, especially if working conditions are incompatible with care (EU OSHA, 2016a). King and Pickard (2013) find that older women (50 to 60 years) are particularly vulnerable to employment exit if they provide more than 10 hours of care per week. Other authors use a different threshold of 20 hours per week, but, generally, authors agree that care responsibilities often push older workers towards early exit (Carmichael et al., 2010; Heitmueller, 2007). Relatives, predominantly grandmothers, provide a significant proportion of childcare in Ireland (McGinnity et al., 2015). Similarly, a substantial proportion of care for older people or those with a disability in Ireland is provided informally by family members (Gannon and Davin, 2010). These push factors are particularly relevant to the Irish case. Further, financial supports for carers of older relatives or relatives with disabilities are often tied to carers limiting their level of employment, which can lead to early exit (Russell et al., forthcoming 2019). Independent of working status and working conditions, McGarrigle et al. (2014) find that care obligations for the 'sandwich generation' (parents of children who must also help their own parents) result in worse mental health outcomes than for respondents without such obligations. Paradoxically, such groups also report better subjective health status than respondents without such obligations. These findings suggest that care obligations can lead to early exit, through having an effect on mental health.

1.4.4 Household income and resources

Voluntary early exits (early retirement) are strongly linked to income security (Warren and Kelloway, 2010; Nivakoski and Barrett, 2017). Warren and Kelloway (2010) suggest that control over finances and the availability of finances have a strong negative effect on workers' intentions to work beyond the age of 65, seen as a legally defined (but arbitrary) 'end point' for most workers.

Recent figures suggest that 53 per cent of the working population in Ireland have no pension cover beyond the state pension (CSO 2015).⁶ Access to private or occupational pension income is strongly stratified by social class. In 2015, 17 per cent of those in sales or customer-service occupations, and 22 per cent of those in elementary occupations had a private or occupational pension, compared to 75 per cent of those in professional occupations (CSO 2015). While an equal proportion of men and women in employment had such pensions, other sources show that there is a gender gap in the value of such pensions among retirees. Using data from The Irish Longitudinal Study on Ageing (TILDA), Nivakoski and Barrett

⁶ Central Statistics Office, QNHS Pension Provision, https://pdf.cso.ie/www/pdf/20160530084332_QNHS_Module_on_Pensions_Q4_2015_full.pdf

(2017) report that the mean pension income was €539 for men and €422 for women, resulting in a female to male ratio of 78 per cent. This is somewhat narrower than the earnings ratio for the TILDA sample, which was 75 per cent.

In general, early retirement is associated with higher income, but this relationship is weakened by the countervailing influence of ill health and unemployment/job insecurity, which are more prevalent among disadvantaged groups. Radl (2013) explores class differences in early retirement, noting that the impact of class on retirement behaviour is 'not only... strong but also irreducible to other socio-economic variables such as education or job tenure'. He finds that routine workers (who are at the bottom of the class hierarchy) are unable to retire early due to economic constraints because they have low pension entitlements and limited access to retirement plans. At the top of the class hierarchy, higher social-class workers, despite having access to retirement plans and high private and occupational pension claims, appear to remain in work for longer because they are not exposed to involuntary exits. Skilled manual workers and other blue-collar roles exit earlier than the above groups for both voluntary and involuntary reasons; they are more likely to lose their jobs and suffer poor health than upper-class groups but are also more likely to have better pensions than those in routine occupations. Radl (2013) concludes that the push and pull factors affect different class positions in markedly different ways.

1.5 HEALTH, WORK-RELATED ILLNESS AND WORK

Given our focus on working conditions and the health and safety implications of the ageing workforce, we present some of the evidence around the health status of older workers and their experience of work-related illness and injury. We also consider the evidence about the link between ageing, health and work performance. In discussing the relationship between ageing, health and work, it is important to note that different processes may operate, though it is not always possible for researchers to disentangle these effects:

- health issues that occur independently of work, but can nevertheless be managed in better or worse ways within organisations;
- health issues that are caused or made worse by *current* working conditions
- health issues that are caused by *previous* working conditions, or the long exposure to poor conditions over the life course.

These processes may all be at play simultaneously, and working conditions may affect health in different ways depending on chronological or biological age. The nature of the underlying process is important as they lead to different policy recommendations.

The European Agency for Safety and Health at Work (EU-OSHA, 2016a) undertook a detailed review of the implications of ageing for the health and safety of the workforce, including a review of the changes that occur for ageing individuals. It found that a number of key physiological functions deteriorate with age. These include measures of strength, dexterity and mobility. Further, instances of chronic illness (such as cardiovascular issues and musculoskeletal disorders (MSDs)) are higher among older workers than the general working population, and some aspects of cognitive ability also decline with age such as memory and processing speed.

However, the study reports that other aspects of cognitive ability such as control and use of language and ability to reason can increase with age. Moreover, instances of depression and anxiety are less common among older workers. These findings challenge the idea that chronological ageing is inevitably associated with deterioration of health and functioning.

The key message of the review is that the age at which changes in physiological and cognitive functions start to take place, and the extent of such changes, vary widely across individuals and social groups (ibid., p25; p74). This underlines the disjuncture between biological and chronological ageing. Further, the review notes that negative associations between older respondents and lower outcomes in muscle strength or cognitive function may stem from a lack of activity in old age. As a result, these issues could be the product not of work, but of the movement from work into inactivity. Extending working life may delay such changes. The review also highlights that many aspects of biological ageing do not commonly manifest until after the age of 70, such as average aerobic power (EU OSHA, 2016a), again with the caveat of chronological age being an imperfect predictor.

Another key conclusion of the review is that there is little evidence that changes in cognitive function affect work performance since older workers 'compensate... with an increase in knowledge, experience and judgement' (ibid., p. 26). Skill and experience can also compensate for losses in physical function (ibid., p. 25 citing Harris and Higgins, 2006). Yeomans (2011) suggests that older workers may work more efficiently due to experience, avoiding the need for working 'harder'. Lastly, the effects of other age-related changes in health can be minimised through

corrective aids (e.g. for vision and hearing) and through adjustments in the workplace (EU OSHA, 2016a; Nilsson 2016). Such adjustments include changes to the physical environment, e.g. seating, lighting, access to water, or changes in the organisation of work such as reduced working hours, increased flexibility, or changes in tasks to less physically demanding work.

Biological ageing and health outcomes are also affected by current or past working conditions, the penalties of which build up over one's life. In health inequality research, this is known as the *life-course perspective* (Ferraro & Shippee, 2009; Layte and McCrory, 2010). From this perspective, *biological ageing* in older workers stems less from *chronological ageing* and more from exposure to poor working conditions over the life-course, in a cumulative process. Therefore, professionals and managers would report better health outcomes than manual workers of a similar age (e.g. McCrory et al., 2018).

These interpretations are important as they lead to different policy conclusions. If health outcomes stem from *health processes* that occur independently of working conditions, then conditions should only be improved to accommodate older workers. If health outcomes stem from cumulative disadvantage over the *life-course*, working conditions should be reconsidered for a wider group. In this sense, some of the negative effects of conditions could be offset in the early stages of one's career, which would limit the effects of *biological ageing*.

1.6 WORK-RELATED ILLNESS AND OLDER WORKERS

Previous research published by the ESRI and HSA found that rates of work-related musculoskeletal disorders are more common among older age groups (Russell et al., 2016). However, the differences in the rates between age groups over 35 years are relatively small. Holding sector and other characteristics constant, those aged 35–44 and those aged 45–54 are 2.5 times as likely to experience MSDs compared to those aged under 25 years; the respective figures for those aged 55 to 64 and those aged over 65 years are 2.7 and 2.3.

The EU-OSHA (2016a) also finds a higher incidence of work-related MSDs among older workers. These age patterns may be due to earlier exposure to work-related hazards that accumulate over time causing problems among the older age group. Alternatively, declines in muscle strength may mean that some older workers in physically demanding jobs are working closer to their full capacity, which can increase the risk of injury and illness. However, continuing to work in manual employment may also help preserve physical function such as grip strength (McCrory et al., 2018). Moreover, some occupational diseases only appear

following a long latency period, which means that such illnesses observed among older workers are due to earlier exposure to occupational hazards. For example, a study by Schwatka et al. (2012) found that older workers in the construction sector were much more likely to report a range of occupational illnesses such as pneumoconiosis, mesothelioma, asbestosis, and hearing loss.

Russell et al. (2016) also found that, controlling for other relevant factors, work-related stress, anxiety and depression increased across age groups, peaking among those aged 45 to 54 years. The risk of these illnesses reduced somewhat among the 55 to 64 group and was lowest of all among those aged 65 plus. We speculate that this is a healthy worker effect (or selection effect), where those experiencing stress, anxiety or depression are more likely to retire early, leaving only those with the best mental health to continue beyond retirement age.

1.7 WORK-RELATED INJURY

Numerous studies in Ireland and elsewhere show that younger workers and inexperienced workers are the most at risk of workplace injury (Crawford et al., 2010; HSA statistics reports, various years; Khanzode et al., 2012; Russell et al., 2015; Yeomans, 2011). Irish research finds that injury declines with age, even when differences in sector and occupation are taken into account (Russell et al., 2015)

There is evidence that, while injury rates are lower for older workers, accidents involving older workers are likely to result in more serious injuries, permanent disabilities or death than for younger workers (EU OSHA, 2016a; Robertson and Tracy, 1998). In Ireland fatal injuries are more common among older workers. We explore this pattern in greater detail in Chapter 4.

1.8 IRISH POLICY CONTEXT

The review of the ageing workforce literature (above) suggests that government and employer policies are likely to have a crucial role to play in creating more sustainable employment for older workers. Active ageing is a major policy goal in the *Europe 2020* strategy and in Ireland. Ireland's *National Positive Ageing Strategy*, launched in 2013, commits to improving participation of older people in economic and social life, including by removing barriers to employment. The strategy highlights that longer working lives can have positive physical and psychological effects. Increasing employment among older workers has also been identified by policymakers in Ireland as crucial to guaranteeing the adequacy of pension and the increased public expenditure need for the ageing population (DPER, 2016).

1.8.1 Retirement age

In Ireland there is no statutory retirement age; age of retirement is specified by individual employment contracts. Retirement age has traditionally been tied to the age at which the state pension could be claimed. Before 2014 the pension age stood at 65 years. In 2014, this was raised to 66, and is set to increase to 67 in 2021 and to 68 in 2028. Therefore anyone born after the year 1961 now has to wait until the age of 68 before they can claim the state pension.

There is a disjuncture between the state pension age and the retirement age written into many employment contracts, which has resulted in a sharp increase in the number of people aged 65 claiming the Jobseeker's allowance and benefit.⁷ Among public-sector employees, the mandatory retirement age has been increased to 70 for workers who were recruited before 1 April 2004. The minimum retirement age for public servants has been raised to 66 for those recruited after 1 January 2013 and will increase to 68 in 2028 in line with the pension reforms.⁸

Among private-sector workers, retirement age is established through employment contracts or through 'custom and practice' (see WRC, 2017⁹). Self-employed workers have no mandatory retirement age, and tend to work longer than employees. Under equality legislation, employers are entitled to set a mandatory retirement age.

Research across 11 European countries comparing preferred and actual retirement ages (Steiber and Kohli, 2017) suggests that, as minimum retirement ages have risen, the risk of involuntary work has increased for men but that involuntary retirement is a more common experience for both men and women.

⁷ The number of those aged 65 claiming the Jobseeker's Benefit rose from 465 to 2,339 between 2013 and 2014, while the Jobseeker's Allowance figure increased from 1,250 to 2,343 (see DSP, 2013, 2014).

⁸ People employed between 1 April 2004 and 31 December 2012 do not have a compulsory retirement age, and some occupations, e.g. gardaí, have different retirement age entitlements.

⁹ A statutory instrument specifically states: 'Retirement ages in the private sector are generally set out by means of... custom and practice generally arising from the pension date set out in the relevant occupational pension scheme.'
<http://www.irishstatutebook.ie/eli/2017/si/600/made/en/pdf>

1.8.2 Employment policy

Until very recently, Irish policy documents on employment and jobs had surprisingly little to say about the ageing workforce. *Pathways to Work 2016–2020*, the key strategy document on employment, has the aim of creating full employment but makes no reference to older workers as a group, except to observe trends in participation, and discouragement among older males. There are no strategies or targets aimed at increasing participation among older workers. While there is mention of spreading activation efforts to people with a disability who are out of the labour force, there is no mention of efforts to retain workers who develop a disability or illness, which would address one source of involuntary early exits among older workers. Similarly, the issue of the ageing workforce or retaining older workers is largely absent from the annual *Action Plans for Jobs*, and, where ageing society is mentioned, it is in the context of forecasting future demands for products and services (Action Plan for Jobs, 2014).

The recently published *Future Jobs Ireland 2019* has belatedly addressed this issue. Under Pillar 4 ‘Increasing Participation’, the report notes that ‘we must have a labour market welcoming of older workers’ and sets a target to increase the participation rate among those aged over 55 from 34 per cent to over 38 per cent by 2025. Greater participation is to be encouraged through more flexible work arrangements and reducing the financial disincentives for those who wish to work longer; changes in state pensions arrangements and PRSI, for example, are among the actions envisaged in the short term.

The needs of older workers are addressed in the *National Positive Ageing Strategy* (Dept. of Health/Healthy Ireland 2013). Under the national goal of removing barriers to participation in social, economic and cultural life is the objective to:

Develop a wide range of employment options (including options for gradual retirement) for people as they age and identify any barriers (legislative, attitudinal, custom and practice) to continued employment and training opportunities for people as they age.

This goal is to be achieved through a variety of means, including promoting the development of age-friendly workplaces to accommodate those wishing to continue to work, improving attitudes of employers around the productive capacity of older workers, and removing disincentives to working beyond retirement age.

Commitments relevant to the minority of older workers who develop a disability in later life (either through work or non-work factors) are also included in the *Comprehensive Employment Strategy for People with Disabilities*.¹⁰ One of its six strategic priorities is: ‘Individuals who acquire a disability during their working years will be supported to obtain, retain or regain employment, as appropriate’.

What accommodations do employers have to make?

The Employment Equality Acts outlaw discrimination against workers with a disability, regardless of age. The Acts specifically mention recruitment, employment, promotion and training. Employers are expected to accommodate the needs of existing and prospective employees with a disability, but are not obliged to recruit or retain someone who could not fulfil the job if accommodated.

The Acts consider ‘reasonable accommodation’ as a modification of working tasks, and changes to work start and stopping times, to the workplace and to the workstation of workers with a disability. ‘Reasonable’ means that such changes do not constitute a major burden for employers.

1.8.3 Working hours/flexible working

Both EU and national bodies recommend flexible working arrangements as an important policy to facilitate sustainable employment for older workers (European Commission, 1995; EU-OSHA, 2017; EU-OSHA et al., 2017; DPER, 2016). Flexible working can facilitate those who have additional caring responsibilities, and workers with a disability or health problems. Reduced hours can also act as a gradual stepping stone to retirement, which can encourage longer working and ease adjustment both for employers and employees.

These also align with workers’ preferences. Research suggest that most older workers would prefer a gradual reduction of working hours rather than a sharp transition from full-time work to retirement (see Slowey & Zubrzycki, 2018; Fahey & Russell, 2001).

¹⁰ See Department of Justice, *Employment Strategy for people with Disabilities 2015–2024* (2015).

1.9 STRUCTURE OF THE REPORT

The report is structured as follows. Chapter 2 describes the distribution of older workers in Ireland and explores their working conditions and health outcomes at work. This includes a comparison of age cohorts in their subjective health status and their perceptions of their ability to work longer, and how this varies by working condition and occupations/sectors. Chapter 3 builds on these subjective opinions and compares the retention rate of older workers across occupations and sectors, asking which better accommodate older workers. The chapters also explore early leavers, and the paths early leavers take out of employment. Chapter 4 explores fatality rates by age group across occupations and sectors, untangling the relationship between age and sector. Chapter 5 summarises the findings and provides policy recommendations.

CHAPTER 2

Older Workers in the Irish Labour Market

2.1 INTRODUCTION

In this chapter we describe three important features of older workers' labour-market experience. First, we examine the age profile of the workforce and how this profile has changed over time. Second, we outline the working conditions of older workers, exploring their employment contracts, working hours, and involvement in shift work. In the final section, we compare a number of health and safety outcomes across age groups.

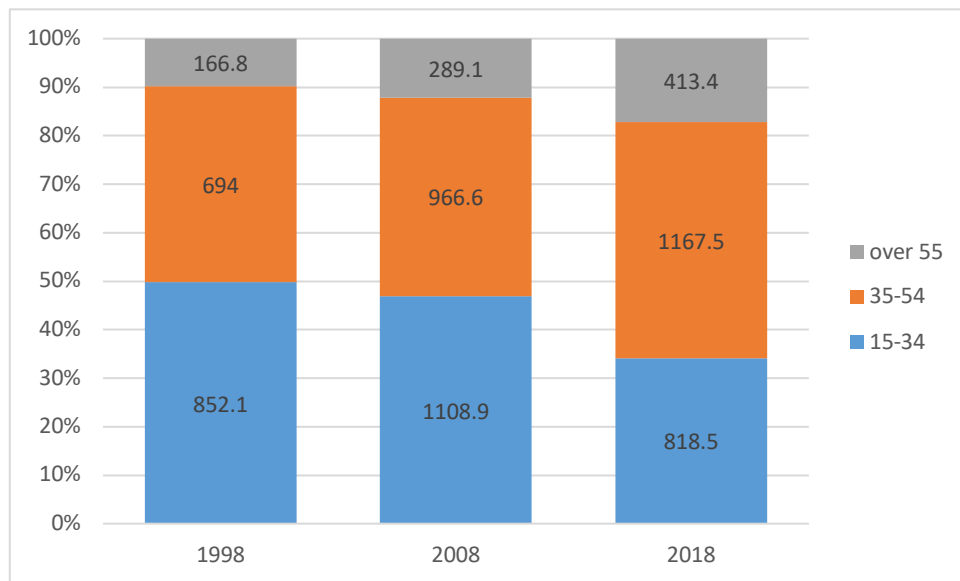
For this analysis, we use a threshold of 55 or older to define older workers, which is consistent with other studies in this field (including the OECD definition). We are also interested in the characteristics of those who work beyond the usual retirement age of 65. While the state pension age increased recently (see Chapter 1), most of the cohort in question will have been eligible for a state pension at age 65. The chapter outlines key differences in outcomes across age groups, and presents a puzzle: do older workers report worse outcomes than younger workers, or are older workers simply located in occupations and industries with poorer outcomes overall, regardless of age?

2.2 AGE COMPOSITION OF THE LABOUR FORCE IN IRELAND

The share of the labour force in Ireland accounted for by older workers has increased substantially in the last twenty years. The labour force consists of all those who are employed or who are unemployed and actively looking for work. Those aged 55 and over made up 10 per cent of the labour force in 1998. By 2018, this share had increased to almost 20 per cent (Figure 2.1). This change coincided with a dramatic fall in the youth share of labour-market participation since the recession, a pattern that was observed in many European countries (Grotti et al., 2018).

Part of this trend could be explained by education. Younger workers have increased their time in third-level education, and delayed their transition to full-time work. Further, occupational categories requiring higher or vocational skills (nursing or different forms of construction) sometimes require internship programmes that list workers as students, masking significant participation. Nonetheless, older workers have increased their participation not only in their share of the labour force, but also in their raw numbers (166,000 in 1998 to 413,000 in 2018).

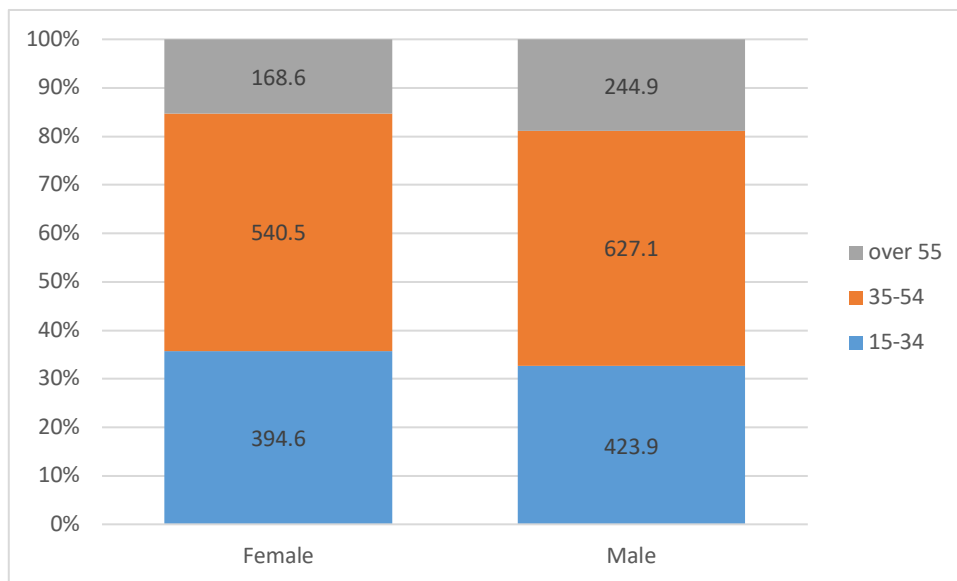
FIGURE 2.1 COMPOSITION OF IRELAND’S LABOUR FORCE BY AGE (% & 1,000S) (1998, 2008, 2018)



Source: Labour Force Survey, Q2 2018, Authors’ calculations. Q2 1998 & Q2 2008, Central Statistics Office, see StatBank Table QLF18.

The age composition of the labour force differs markedly by gender (Figure 2.2). In 2018, 19 per cent of the male labour force were aged 55 years or over compared to 12 per cent of the female labour force. Increasing the length of the working life and creating sustainable employment for older workers is therefore a greater challenge in the case of female workers.

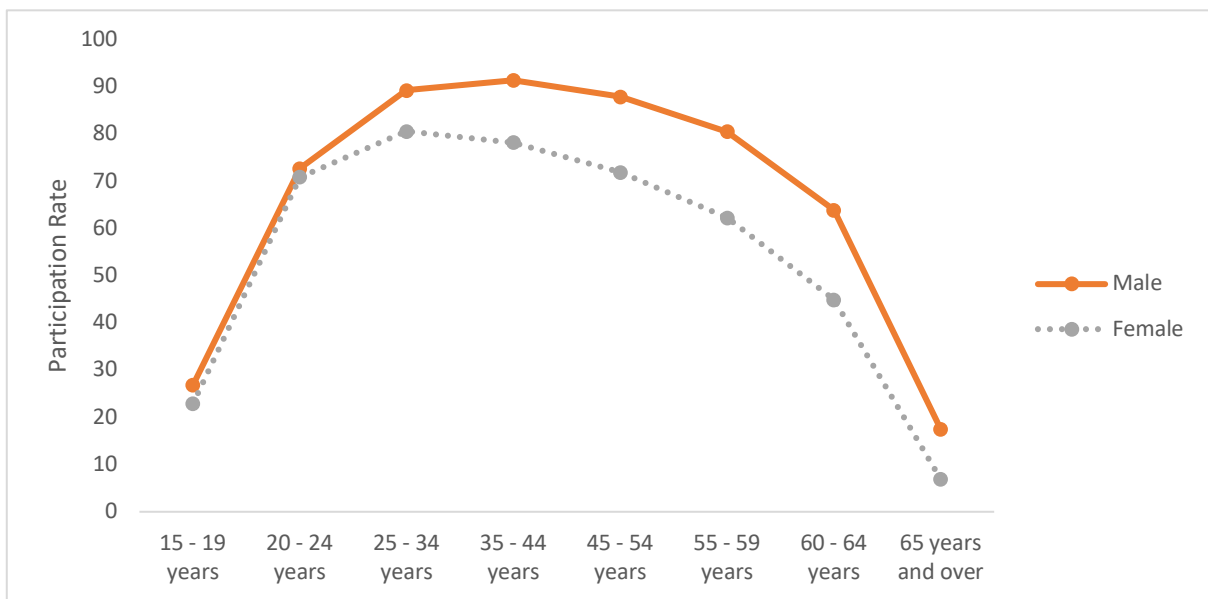
FIGURE 2.2 COMPOSITION OF IRELAND'S LABOUR FORCE PARTICIPATION BY AGE AND GENDER (% 1,000s) (2018)



Source: Labour Force Survey, Q2 2018. Authors' calculations.

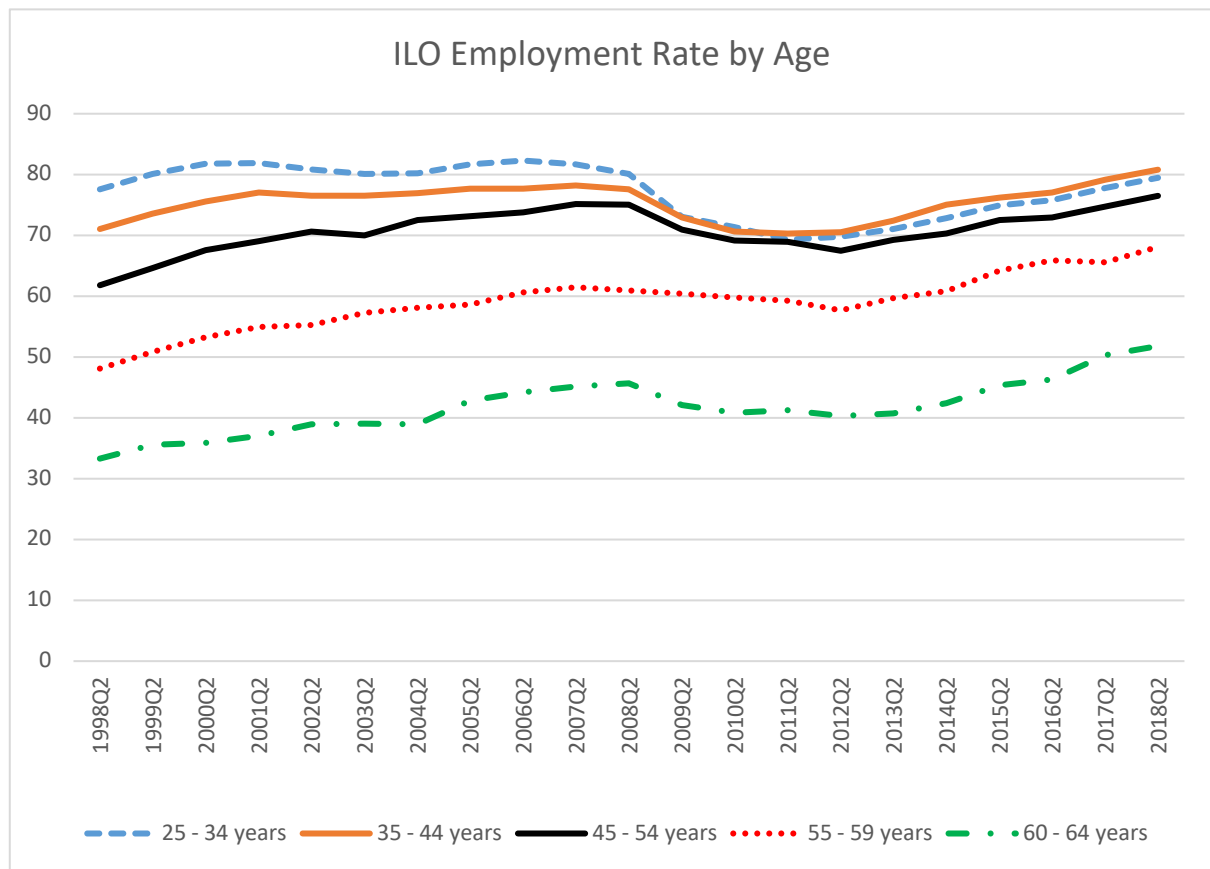
To better understand this age profile, we show the participation rate for men and women in each age category in 2018 (Figure 2.3). The participation rate is the proportion of each age group that are in the labour market (either employed or unemployed and looking for work). The participation rate for men and women is identical among those aged under 25. When participants are in their 30s, a divergence occurs between men and women. The gap is most pronounced between men and women aged 45 to 54 and 55 to 59. Participation rates for both men and women fall sharply among those aged 65 and over: only 18 per cent of men and 7 per cent of women in this age group are still active in the labour market.

FIGURE 2.3 ILO PARTICIPATION RATE BY AGE AND GENDER (%)



Source: Labour Force Survey, Q2 2018. Authors' calculations.

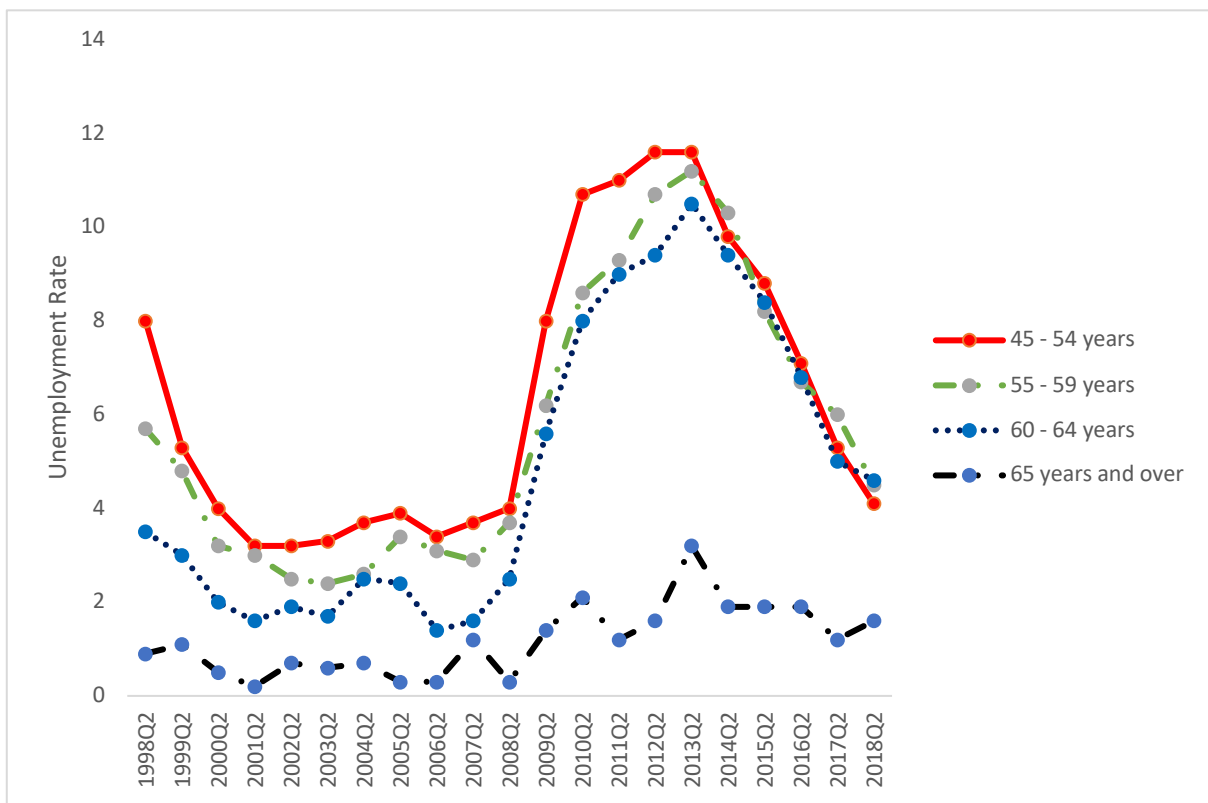
Figure 2.4 shows how employment rates of older people evolved between 1998 and 2018. This data is only available for those up to age 65 years. The graph shows that employment rates among older workers (aged 55 to 59 and 60 to 64) increased rapidly. Employment growth stalled for both groups during the recession years but did not decline markedly, and from 2013/14 the employment rate increased year on year with the economic recovery. The increase in employment over the period as a whole has been much stronger for older than for younger workers, especially those under 35 years.

FIGURE 2.4 ILO EMPLOYMENT RATE BY AGE, OVER TIME (%)

Source: Labour Force Survey, 1998–2018. Authors' calculations.

This increase in employment rates occurred parallel to a fall in unemployment for older workers between 2014 and 2018. Older workers saw an increase in unemployment during the Irish recession. However, unemployment declined rapidly after 2014 (Figure 2.5). Older workers have converged to a rate of roughly 4 per cent. The rate is particularly low for those over 65 years of age; those of pensionable age who are out of work are likely to define themselves as retired rather than unemployed even if they would prefer to be employed.

FIGURE 2.5 ILO UNEMPLOYMENT RATE BY AGE (OLDER WORKERS ONLY) (%)



Source: Labour Force Survey, 1998–2018. Authors’ calculations.

We can also compare Ireland’s older workers to those in EU28 countries. The OECD’s Late Career Scoreboard tracks this data for all EU28 countries. It presents comparative key country indicators to monitor the progress achieved of policies promoting active ageing.

TABLE 2.1 OECD OLDER WORKERS SCORECARD

	Ireland		EU28	
	2006	2016	2006	2016
Demographic situation				
Old-age dependency ratio ¹	0.18	0.23	0.28	0.32
Effective labour force exit age (years) – Men	64.9	66.9	62.0	63.4
Effective labour force exit age (years) –Women	65.3	63.5	60.5	62.0
Employment				
Employment rate, 50-74 (% of the age group)	46.7	47.9	38.3	45.4
of which 50-54	71.3	71.8	73.1	77.9
55-64	53.2	57.2	43.3	55.3
65-69	16.9	19.4	9.1	12.1
70-74	8.1	10.6	4.4	5.5
Gender gap in employment, 55-64 ([men-women]/men)	0.40	0.26	0.34	0.21

Source: OECD Late Career Scoreboard.

¹ The ratio of the population aged 65 and over to the population aged 20-64.

Our previous findings are reflected again in Table 2.1. Ireland saw a small increase in the old-age dependency ratio between 2006 and 2016, as did the EU28. However, Irish workers leaving employment are on average older than those of the EU28. Further, Irish men have increased their average retirement age by almost two years when compared to the EU28 average. The employment rate of those aged 50 to 74 is higher in Ireland than in the EU28, and it too increased since 2006. The sharpest change occurred for those aged 55 to 64. Lastly, the gender gap in employment fell in Ireland, and is now closer to the average for all EU28 countries.

This section suggests that older workers have increased their participation in the labour market without increasing their unemployment. However, the process is gendered, with more men extending their participation than women. Generally, the Irish workforce retains older workers better than the EU28 average. While this trend is generally positive, we note that simply extending working lives is not a sustainable answer to work longevity. Nor is it possible to identify whether some older workers remain in the workforce ‘involuntarily’ because they cannot afford to exit. Older workers may be extending working lives in dangerous positions simply because they have no alternative but to continue working. It is therefore worth considering the wider working conditions that older workers experience.

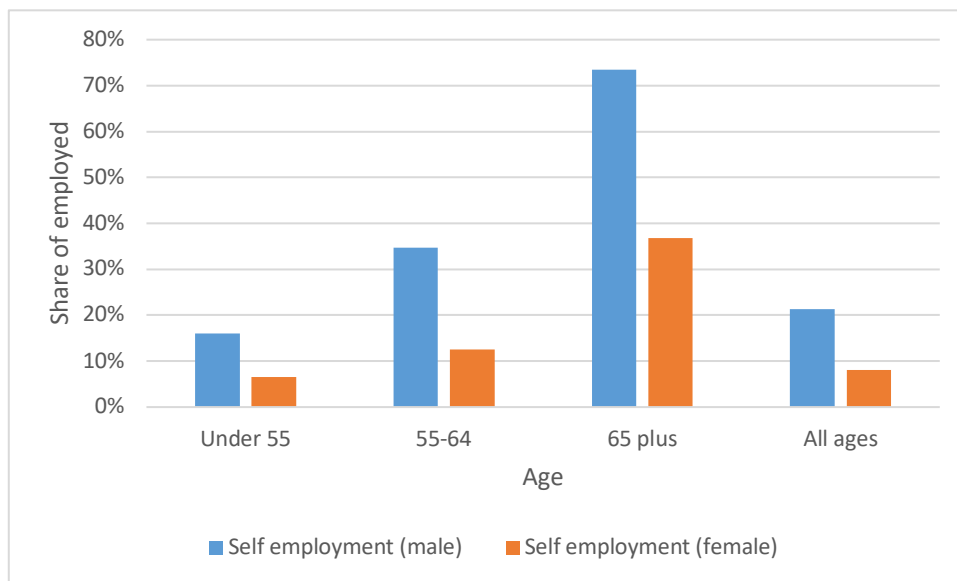
2.3 WORKING CONDITIONS OF OLDER WORKERS

This section outlines the main features of older workers' employment conditions. We focus on two measures of job quality: the employment contract and weekly working time.

2.3.1 Employment contract

It is regularly observed that working beyond state pension age is much more common among those who are self-employed. The most recent Labour Force Survey data show that the proportion of workers that are self-employed increases sharply with age (Figure 2.6). For men, the self-employment rate increases from 16 per cent among the under 55s to 35 per cent among those aged 55 to 64 years, and to 74 per cent among those aged over 65. Self-employment is much less common among female workers but the same age pattern is evident. The self-employment rate rises from 7 per cent among female workers aged under 55, to 13 per cent among those aged 55 to 64, and peaks at 37 per cent among those aged 65 and over.

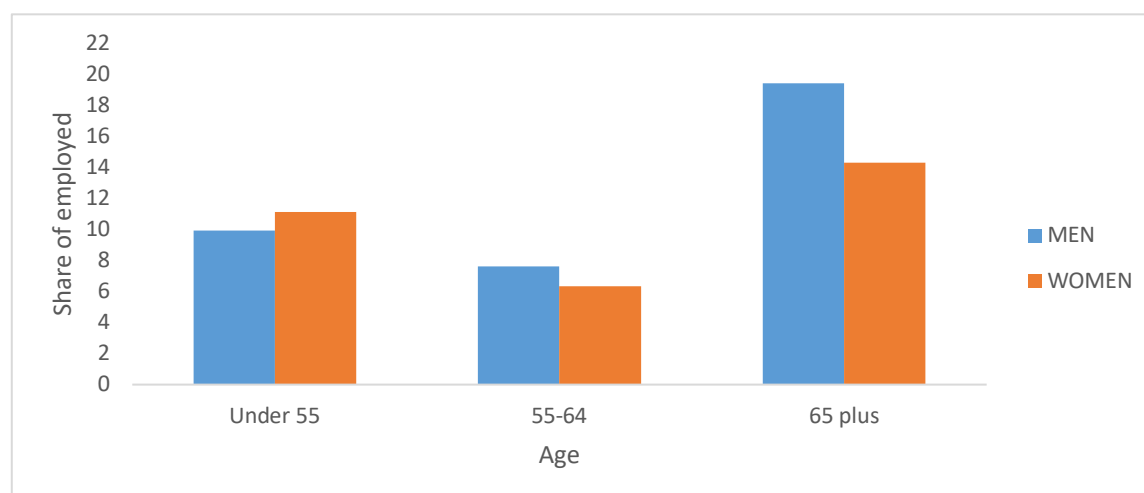
Self-employment in Ireland is concentrated in specific sectors, namely the agricultural sector and construction. This is also true of self-employment among older workers. These patterns of self-employment are relevant to the analysis in Chapter 3 when we consider which jobs and sectors have a higher rate of retention of older workers.

FIGURE 2.6 PERCENTAGE OF WORKERS IN SELF-EMPLOYMENT BY AGE AND GENDER, 2018

Source: Labour Force Survey, Q1-Q3 2018.

Using longitudinal data, Nolan and Barrett (2018) explore whether higher rates of self-employment among older workers in Ireland are due to higher retention rates in self-employed positions or moves into self-employment among older workers. They find little evidence of older workers making a transition from employment into self-employment after the age of 65, so the higher prevalence of self-employed among older workers is due to this group staying in their positions for longer. The study does not reveal whether the self-employed decision to work longer is driven primarily by push factors, such as inadequate retirement income or lack of a successor for the business, or by pull factors, such as a higher motivation to continue working and a lack of contractual constraint on doing so. The findings also suggest that the high rates of self-employment could stem from a cohort effect rather than an age or period effect; that is, older generations were more invested in self-employment due to a different labour-market context in previous years.

The nature of employment contracts for workers over 65 is different to that for younger workers. Figure 2.7 shows the proportion of workers in temporary employment agreements. Temporary contracts are typically tied to precarious jobs, and could lead older workers to periods of unemployment or early exit from employment.

FIGURE 2.7 PERCENTAGE OF EMPLOYEES IN TEMPORARY CONTRACTS BY AGE (2018)

Source: Labour Force Survey, Q1-Q3 2018.
 Note: Employees only.

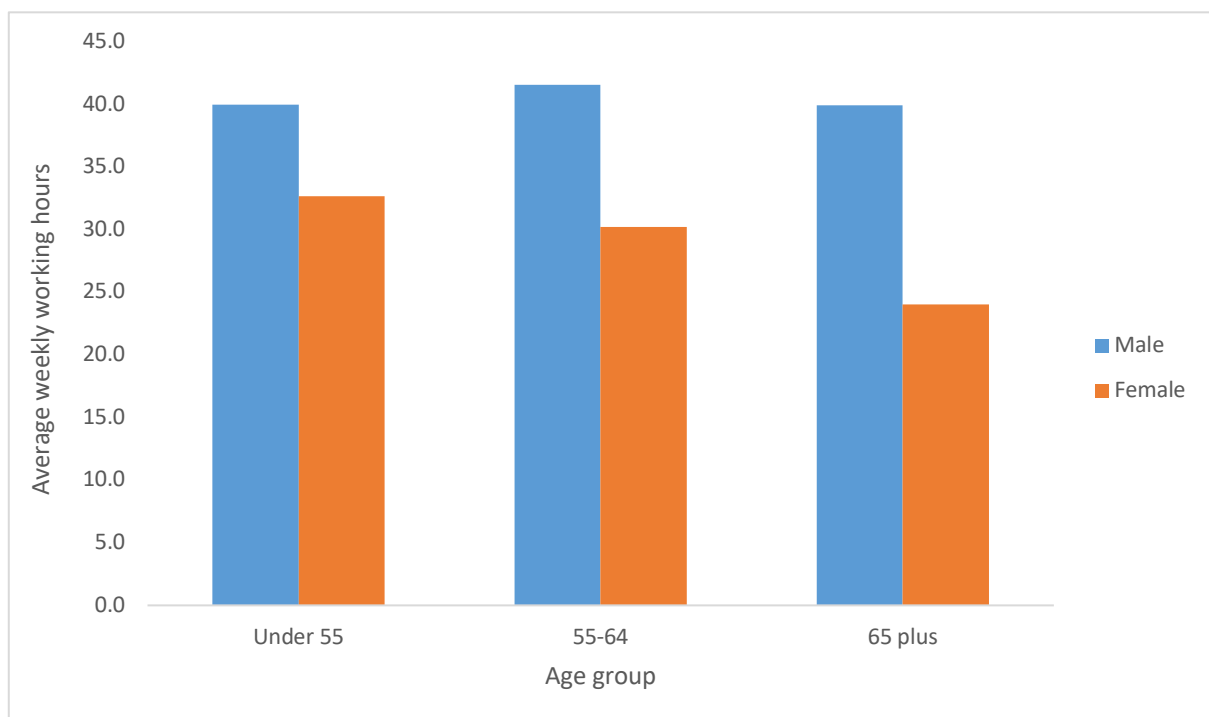
There is a divergent pattern of temporary work among older workers. For those aged 55 to 64, temporary contracts are less common than among those aged under 55 years. However, temporary contracts are more common among workers aged 65 and over; 19 per cent of male employees and 14 per cent of female employees have this kind of contract (Figure 2.7). It is uncertain from this data whether this is because older workers are more likely to move from permanent to temporary positions, or because a key group of older workers in temporary contracts remains whereas their counterparts with permanent positions retire. However, this may be a matter for concern as temporary contracts can also be associated with other measures of poorer job quality, and a move from permanent to temporary employment is often associated with a deterioration in employment conditions.

2.3.2 Working time

This section explores patterns of working time among older workers, asking whether older workers are prone to working part-time or whether they work similar hours to younger workers (Figure 2.8). Starting with men, average weekly working time is similar for men under 55 and men aged 55 to 64. There is a minor decline in average working time for men aged over 65 compared to men under 55.

Age differences among women are different to age differences among men. Average weekly working time seems to be negatively correlated with age. Women aged over 65 work on average 24 hours per week, while women under 55 work on average 33 hours per week. The differences in men and women's paid working hours are likely to be linked to gender differences in care and unpaid work obligations (Russell et al., 2019). There may also be greater opportunities to work reduced hours in female-dominated occupations.

FIGURE 2.8 AVERAGE WEEKLY PAID WORKING HOURS (2018) BY AGE AND GENDER



Source: Labour Force Survey, Q1-Q3 2018.

The average working hours, however, hide a substantial amount of variance in working hours within age groups. Looking in more detail at hours of work, we see a polarisation in patterns for older men (Table 2.2).

Focusing on men, part-time work (where respondents work less than 30 hours) is more common among older men and less common among men under 55. Extreme working hours (where respondents work over 50 hours per week) are also more common among older men than younger men. This is likely to be a self-employment effect.

Part-time work is more common among older women than younger women and those aged over 65 years are particularly likely to be working very short hours – less than 15 hours per week.

TABLE 2.2 USUAL HOURS WORKED

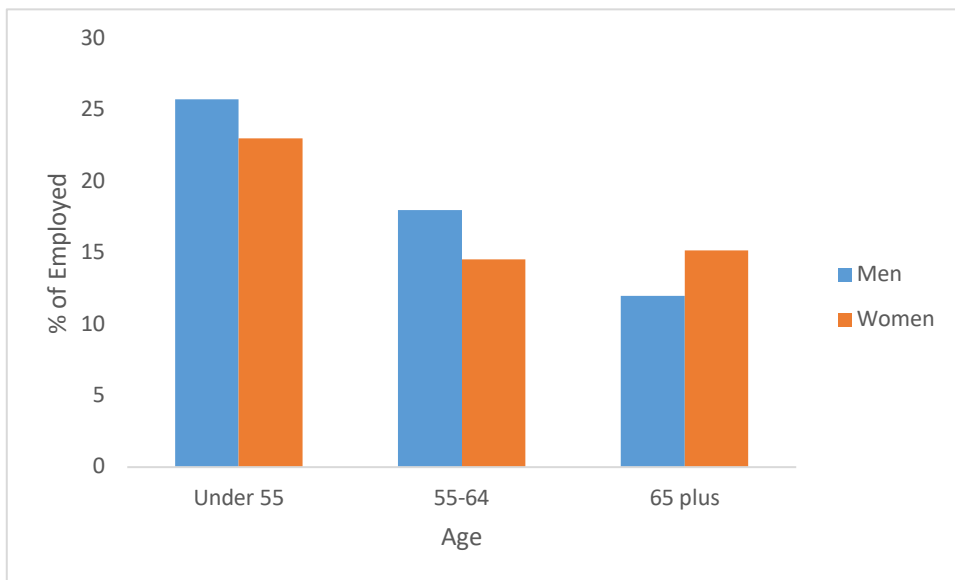
Men			
Weekly hours worked	Under 55	55-64	65 plus
	%	%	%
<15hrs	2.9	2.4	9.7
15-29hrs	7.8	10.6	18.9
30-39hrs	32.3	30.5	18.0
40-49hrs	41.5	32.7	20.3
50hrs plus	15.5	23.8	33.1
Total	100	100	100
Women			
	Under 55	55-64	65 plus
	%	%	%
<15hrs	6.3	9.1	28.6
15-29hrs	24.8	32.9	35.6
30-39hrs	41.5	40.7	20.3
40-49hrs	23.4	13.5	9.9
50hrs plus	4.0	3.8	5.6
Total	100	100	100

Source: Labour Force Survey, Q1-Q3 2018.

Previous research has shown that involvement in shift work and night work is related to the risk of work-related injury and illness (Costa, 2003; Russell et al., 2015; Russell et al., 2016; Wagstaff and Sigstad Lie, 2011). Therefore we also examine whether older workers are more or less exposed to these patterns of work. Overall, 23 per cent of the workforce are engaged in shift-work, which is more common for men than women (Figure 2.9). Shift work declines among older male workers. It appears that women over 65 are more likely to do shift work than women aged 55 to 64, but such work is still far less common than among younger women. This pattern is consistent with previous research that also shows a decline in shift work with age (EU-OSHA, 2016a).

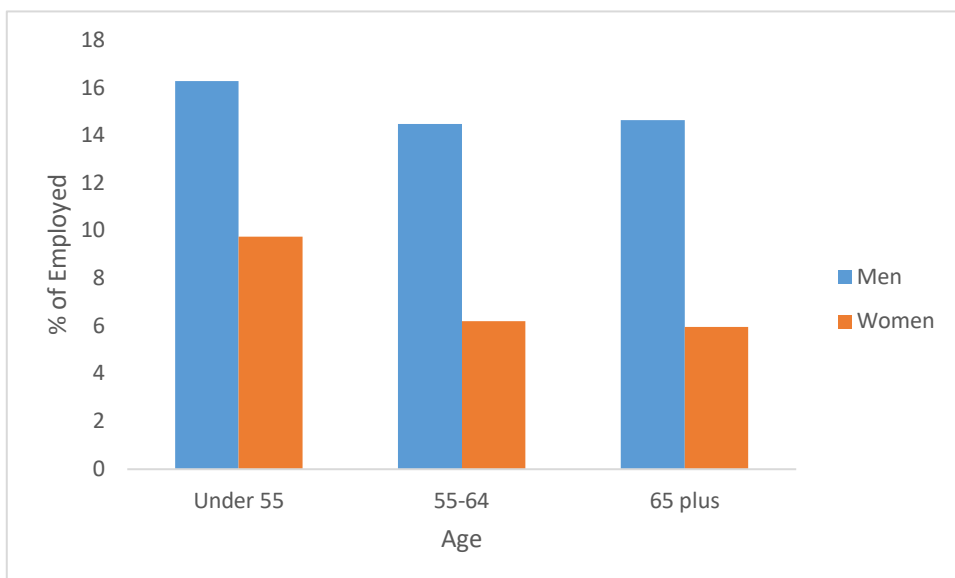
Figure 2.10 considers night work among older workers. As in the case of shift work, men are more likely to work at night than women. There is a decline in night work among men aged 55 to 64, compared to younger workers but this fall is not as sharp as for shift work. Even among male workers aged over 65, 15 per cent remain engaged in night work.

FIGURE 2.9 SHARE OF EMPLOYED IN SHIFT WORK BY AGE AND GENDER (2018)



Source: Labour Force Survey, Q1-Q3 2018.

FIGURE 2.10 SHARE OF EMPLOYED DOING NIGHT WORK (%) (2018)



Source: Labour Force Survey, Q1-Q3 2018.

Overall, working-time differences emerge between older men and women and younger men and women. Among older male workers, the difference encompasses an increase in both short and long hours, instead of a clear increase in hours. The figures suggest that a substantial minority of older workers are still involved in working non-social hours. Given the known link between shift/night work and work-related injury and illness, this is potentially an issue of concern.

2.3.3 Country differences in the work conditions among older workers

How do the working conditions of older workers in Ireland compare to those elsewhere in the EU? The OECD's Late Career Scoreboard provides data that allow for comparisons.

TABLE 2.3 OLDER WORKERS' CONDITIONS, IRELAND AND EU28 (2006 & 2016)

	Ireland		EU28	
	2006	2016	2006	2016
Job characteristics				
Incidence of part-time work, 55-64 (% of total employment in the age group)	22.3	26.1	22.1	22.2
Voluntary part-time, 55-64 (% of part-time work in the age group)	91.3	73.0	85.4	78.9
Incidence of temporary work, 55-64 (% of employees in the age group)	3.8	4.8	6.9	6.7
Incidence of self-employment, 55-64 (% of total employment in the age group)	19.5	22.0	24.1	19.7
Full-time earnings, 55-64 relative to 25-54 (ratio)	1.06	1.14	-	-

Source: OECD Late Career Scoreboard for Ireland, 2006 and 2016.

The incidence of part-time work among older workers in Ireland has increased since 2006 and has surpassed the EU28 (2016) average. However, the incidence of voluntary part-time work among older workers has decreased. In 2006, over 90 per cent of those working part-time did so voluntarily while in 2016 this had dropped to 73 per cent, which was lower than the EU28 average. The EU28 figures also show a fall in voluntary part-time working, which suggests that an increasing number of older workers in Ireland and the EU28 are under-employed.

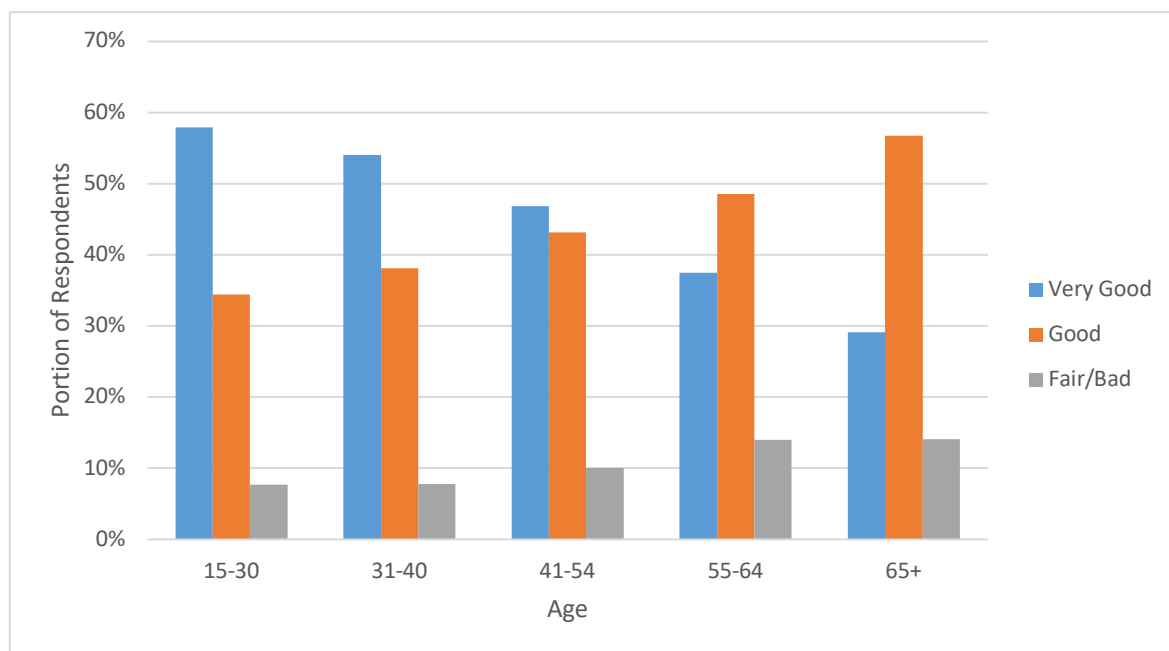
The figures show that temporary work increased among older workers in Ireland between 2006 and 2016, but the average rate is still lower than that for older workers across the EU28. McGuinness et al. (2018) report that the share of all employees in temporary employment was 8 per cent in both 2006 and 2016, following a rise in the post-recession years 2011–2013 when the share rose to 11 per cent. Temporary employment returned to its average level of 8 per cent. In the case of self-employment, trends in Ireland have run in the opposite direction to those in the EU28. Self-employment among older workers increased since 2006 in Ireland, but fell in the EU28. Older workers in Ireland also have higher average full-time earnings than those aged 25–54 years (as shown by the positive ratio) and this increased marginally over the period 2006 to 2016. This is an expected pattern given longer work experience, but does not take into account other factors such as education levels, occupations and sectors.

The results show considerable variance in the conditions of older workers in Ireland: a significant proportion of older workers are self-employed and work long hours; however, there is also a significant portion working shorter hours voluntarily, with little night-work or shift work. The next section considers whether these positions lead to sustainable working lives.

2.4 HEALTH AND WORKING CONDITIONS OF OLDER WORKERS

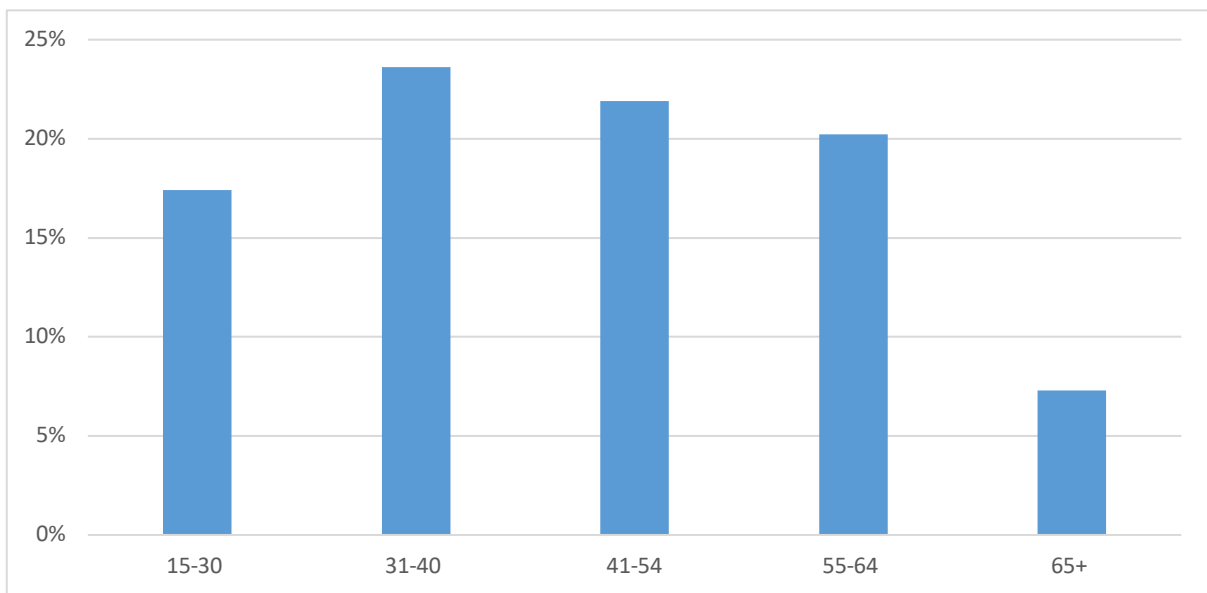
In this section, we consider the health status of older workers in Ireland. We use two sources of information. First, we draw on the European Working Conditions Survey (EWCS) to examine the subjective health of workers and to compare workers' opinions on the impact of work on their health across age groups. We then outline the latest figures on the rates of work-related injury and illness by age, using the HSA statistics.

FIGURE 2.11 SUBJECTIVE HEALTH BY AGE GROUP (EWCS 2015), ALL EMPLOYED (%)



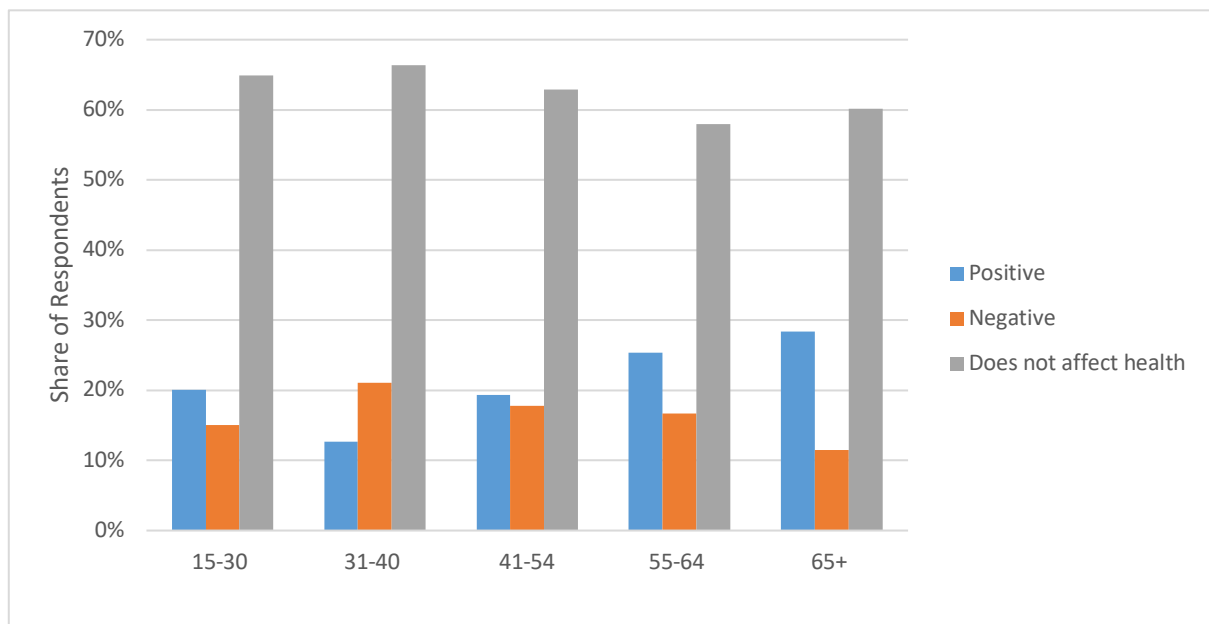
Source: European Working Conditions Survey, 2015.

On the topic of subjective health status, the variance in health exists between those citing good and those citing very good health (Figure 2.11). Younger workers under 30 years are most likely to report 'very good' health, and the proportion declines with age. Older workers, aged 55 or older, have a higher likelihood of reporting 'fair' or 'bad' health than younger workers, although this response is uncommon overall.

FIGURE 2.12 INSTANCES WHERE HEALTH OR SAFETY IS AT RISK DUE TO WORK, SPLIT BY AGE (%) (2015)

Source: European Working Conditions Survey, 2015.

Figure 2.12 shows that older age groups are less likely to believe that their health or safety is at risk due to work. Less than one in five workers aged 55 to 64 believes that their work or working conditions pose a risk to their health. The rate drops to less than 15 per cent for those aged over 65. Another question asks respondents if their work has a positive or a negative effect on their health.

FIGURE 2.13 PERCEIVED EFFECTS OF WORK ON HEALTH, BY AGE (%) (2015)

Source: European Working Conditions Survey, 2015.

Older workers are more likely to believe that their work affects their health positively than younger workers. However, across age groups, most respondents believe that their work has no impact on their health. Workers aged over 65 are the least likely to claim that work affects them negatively. Although the measure captures subjective evaluations of health, it is a useful indicator of workers' perception of their conditions.

An alternative measure of health and safety of working conditions is the experience of work-related injury and illness. Are older or younger workers most likely to experience harm at work? Using the Health and Safety Authority's annual statistics reports,¹¹ we compile a three-year rolling average of injury rates by age group. Rolling averages are used because the numbers in each age group per year are small. Figure 2.14 suggests that injury rates are highest among younger workers prior to 2012, but that there has been some reversal of this trend in the most recent period.

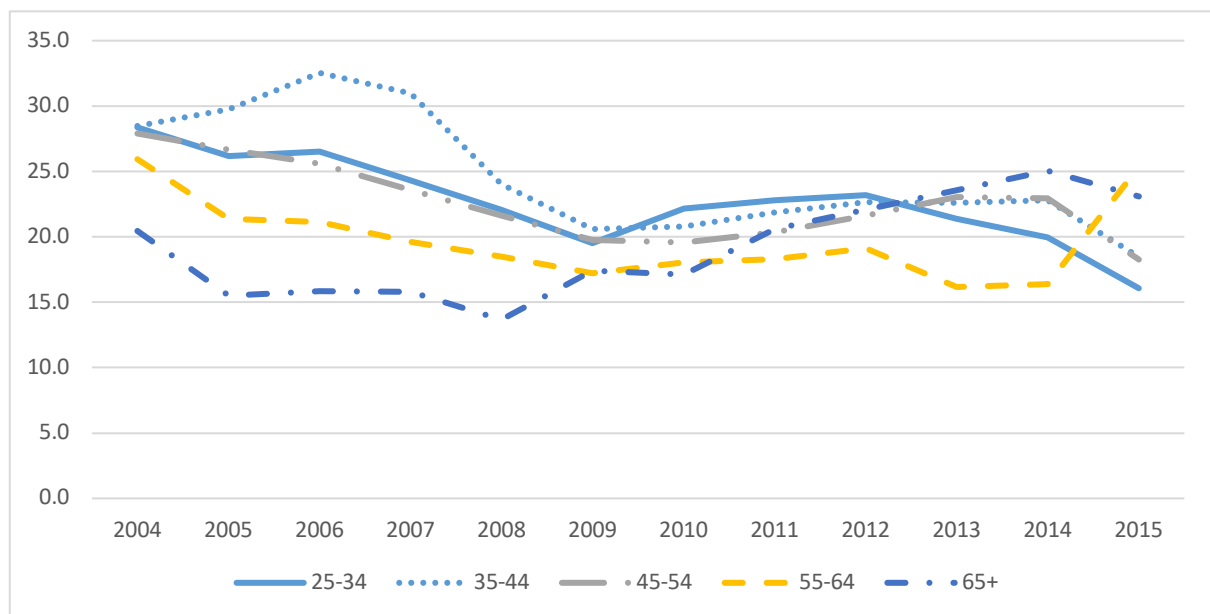
Taking the period as a whole, there is a strong negative correlation between age and injury, where older workers appear less prone to injury than younger workers. Importantly, Figure 2.14 does not control for sector and occupation or other factors such as hours worked, so the age-group differences above are overstated. Our previous work (Russell et al., 2015) shows that, when these factors are taken

¹¹ https://www.hsa.ie/eng/Publications_and_Forms/Publications/Corporate/HSA_Stats_Report_2017.pdf

into account, injury risks clearly decline with age. Nevertheless, the trend suggested by the more recent figure is a matter for concern and should be monitored.

Annual statistical reports from the HSA suggest that workplace accidents leading to death are highest among older people, although fatalities in work are uncommon overall. The relationship between age and workplace fatalities is examined in more detail in Chapter 4.

FIGURE 2.14 INJURY RATE PER 1,000 WORKERS BY AGE GROUP – 3-YEAR MOVING AVERAGE



Source: Health and Safety Authority annual statistics (2004-2015).

Note: Moving average 2 years for 2011 and 2014, moving average 3 years for all other years.

Table 2.4 considers the work-related illness rate across age groups. Here, workers aged 55 to 64 have higher rates of illness per 1,000 workers, while workers over 65 have some of the lowest rates of illness. Previous in-depth analysis of these figures show that these age patterns hold when occupation, sector, job tenure, hours of work, shift/night work are taken into account (Russell et al., 2015). The drop among those aged over 65 years is attributed to positive selection. When the figures are split by type of work-related illness, we found that older workers (aged over 55) are less at risk of stress, anxiety and depression but have a higher risk of muscular-skeletal disorders (Russell et al., 2016).

TABLE 2.4 WORK-RELATED ILLNESS RATES PER 1,000 WORKERS BY AGE

	2016	2015
25-34 years	18.2	11.1
35-44 years	17.9	23.9
45-54 years	22.2	23.1
55-64 years	46.4	29.9
65 + years	18.5	12.6
Total	18.8	21.0

Source: HSA Annual Statistics Reports, based on the CSO Labour Force Survey results.

2.4.1 Perceived job longevity/sustainability

Finally, we use the EWCS to measure if respondents believe they could work their current or similar job when they are 60 years old. We use the term ‘perceived job longevity’. Interviewers ask respondents aged 55 years and under: *Do you think you will be able to do your current job or a similar one until you are 60 years old?* Respondents aged over 55 are asked: *Do you think you will be able to do your current job or a similar one in five years’ time?*

Eurofound (2017) note that this question is designed to capture perceived *ability* to do the job at an older age rather than *willingness* to do so. The inclusion of ‘similar job’ also means that the answer should not be constrained by current contractual arrangements, though answers may still be influenced by perceptions of wider societal and organisational norms about working age.

Overall, 79 per cent of respondents in Ireland aged under 55 agree that they could work in the same or similar job at age 60, while 83 per cent aged 55 or over agree they could work in their current or similar job in five years’ time. Responses also vary within these broad age groups, and between Ireland and the rest of the sample (Table 2.5). In general, respondents in Ireland are more positive about job longevity than those elsewhere in Europe.

TABLE 2.5 PERCEIVED JOB LONGEVITY IRISH RESPONDENTS AND EWCS AVERAGE, BY AGE (2015)

	Respondents in Ireland	EWCS respondents, excluding Ireland
	Able to work in job at age 60 (or in 5 years for 55 plus)	
15-30 years	66.6%	56.2%
31-40 years	76.4%	66.9%
41-54 years	89.7%	77.3%
55-64 years	88.6%	73.8%
65+ years old	58.6%	57.4%

Source: European Working Conditions Survey, 2015.

Note: Those up to the age of 55 are asked 'Do you think you will be able to do your current job or a similar one until you are 60 years old?' Those over 55 are asked 'Do you think you will be able to do your current job or a similar one in five years' time?'

Older age groups are gradually more confident that they can continue working in the same or a similar job. This pattern emerges both in Ireland and in the EWCS average for all other countries. The trend changes for respondents over 65 in both columns. Of such workers in Ireland, only 59 per cent believe they could remain in the same job for another five years. In the wider sample, this value is 57 per cent. Part of the decline after the age of 65 may stem from the process of social ageing, where respondents expect to retire from the job, or to be 'pushed out' from the job when they reach the milestone. The question asks whether they themselves could do the job, and not whether a third party (employer, manager, etc) would allow them to do a job. However, an individual's perception of being 'able' to work beyond 65 is also likely to be influenced by organisational norms that generally require people to retire at 65, and the policy environment that sets pension ages.

Comparing Ireland to the rest of the sample suggests that Irish workers are optimistic about their ability to work in a similar role. In each age category, Irish respondents are more likely to agree with the statement than respondents in the wider EWCS sample. However, the wider sample likely contains significant differences between countries.

The lower perception of younger workers of their ability to work in the same or a similar position at age 60 is curious; we offer three possible explanations. First, it is possible that younger workers hold entry-level positions with poorer working conditions while older workers hold jobs with better conditions that more closely match their ability or qualifications, which makes them more sustainable. Second, this may be an example of younger respondents discounting events that occur a long time in the future. Because of the greater distance between current age and age 60, younger respondents are likely to have a poorer sense of their capabilities at that time point. Third, this result could also stem from perceptions among younger workers of a changing or unpredictable labour market in the future, where

permanent pensionable contracts are uncommon. However, here too, the question given to respondents asks them to focus on whether they would be *able* to do a given job, not whether they would like to, or whether a third party would allow them to by keeping them employed.

We are interested primarily in how perceptions of employment longevity are related to working conditions, occupations and sectors rather than in the age effect *per se*. The age patterns in Table 2.5 could stem from occupational or sectoral differences in working conditions, and the propensity of younger workers to work in more physically demanding or poor-quality jobs. We explore some of this variance in the tables below, focusing exclusively on the Irish sample.

TABLE 2.6 PERCEIVED JOB LONGEVITY: PER CENT WHO AGREE ABLE TO WORK IN SAME OR SIMILAR JOB AT AGE 60 BY OCCUPATION (2015)

	15-54 years old	55 plus	All
Managers	87.4%	95.4%	89.1%
Professionals	83.8%	92.8%	85.3%
Technicians	85.8%	78.8%	84.9%
Clerical support	90.6%	88.1%	90.1%
Service workers	65.6%	73.6%	66.8%
Agricultural workers	98.2%	82.6%	92.0%
Craft workers	76.1%	65.2%	73.7%
Plant workers	77.2%	89.6%	80.6%
Elementary occupations	71.2%	79.9%	73.1%
All	80.0%	83.5%	80.5%
N	784	217	1,010

Source: European Working Conditions Survey, 2015. Irish sample. Authors' calculations.

Note: Those up to the age of 55 are asked 'Do you think you will be able to do your current job or a similar one until you are 60 years old?'. Those over 55 are asked 'Do you think you will be able to do your current job or a similar one in five years' time?'

Occupations differ strongly in terms of perceived sustainability for older workers. Managers (non-manual workers) are the most likely to report that their job is sustainable, while craft (manual workers) and service workers (non-manual workers) are the least likely to report this. Technicians and elementary workers, aged over 55, are less likely to claim that their jobs are sustainable than managers. The numbers in the 55+ age category are small, so these percentages should be treated with caution.

TABLE 2.7 PERCEIVED JOB LONGEVITY AMONG OLDER WORKERS BY SECTOR (2015)

	15-55 years	Over 55	All
Agriculture	90.4%	85.5%	88.5%
Industry	81.4%	78.0%	80.5%
Construction	85.7%	68.2%	82.7%
Commerce/hospitality	71.0%	87.0%	72.4%
Transport	89.0%	89.1%	89.0%
Financial services	86.3%	84.5%	86.0%
Public administration	91.6%	88.5%	90.8%
Education	86.2%	100.0%	87.5%
Health	68.0%	82.1%	69.9%
Other services	85.1%	70.7%	83.1%

Source: European Working conditions Survey, 2015, authors' calculations.

Certain sectors are less likely to contain sustainable jobs than others, most obviously construction and 'other services'. People working in the public administration, transport and education sectors appear more positive about their prospects of working longer.

Older workers' optimism about their work may stem from the types of occupations they hold, relative to younger workers. However, even within these occupations, conditions are likely to differ. We try to untangle these differences using a logistic regression model (Table 2.8). We consider three sources of variance in perceived job longevity. First, we include general controls such as age, gender, employment status and migrant status. Second, we include occupation (or sector) and, third, we include more direct measure of working conditions, such as working hours, physical demands and work-life balance, and perceptions of health and safety risk, to assess which dimensions of occupations may be affecting perceived sustainability of the job.

TABLE 2.8 ODDS RATIO OF AGREEING WITH JOB LONGEVITY (2015)

VARIABLES	(1) Personal and Occupation	(3) Add Work Conditions	(4) Sector not Occupation
Ref: 15-30			
31-40	1.52	1.64	1.75
41-54	3.98***	3.93***	3.80***
55-64	3.02**	2.67*	2.53*
65 and over	0.42	0.30*	0.30*
Ref: Male			
Female	0.64#	0.62#	0.74
Ref: Employee			
Self-employed	1.50	1.50	1.33
Ref: Non-migrant			
Migrant	0.56*	0.59*	0.66
Ref: Managers/Professional/Tech			
Clerical	1.70	1.51	
Service worker	0.38***	0.38***	
Craft worker & skilled agriculture	0.39*	0.48#	
Plant and machinery operative	0.55	0.65	
Elementary worker	0.41*	0.38*	
Ref: Very good work-life balance			
Good balance		0.85	0.85
Not good balance		0.56#	0.51*
Physical demands (scale)		0.86*	0.85**
Working hours		1.00	1.00
Ref: health/safety not at risk			
Health risk		0.47**	0.49**
Ref: retail/wholesale & accommodation			
Agriculture			2.37
Industry			1.60
Construction			1.62
Transport			2.89*
Financial services			1.99
Public admin			2.98*
Education			2.03
Health			1.21
Other services			1.66
Constant	4.43***	7.02***	2.53*
Pseudo	0.11	0.16	0.14
Observations	956	956	954

Source: European Working Conditions Survey, 2015, ESRI calculations.

Note: *** p < 0.001, ** p < 0.01, * p < 0.05, # p < 0.1

Note: Those up to the age of 55 are asked 'Do you think you will be able to do your current job or a similar one until you are 60 years old?'. Those over 55 are asked 'Do you think you will be able to do your current job or a similar one in five years' time?'

Model 1 considers the impact of age, employment status, occupation, and gender. Generally, older workers have higher odds of agreeing that they can do the same job when they are older (or in the next five years). However, the effect declines when workers turn 65, which is likely linked to the process of social ageing. The positive effect of age may reflect one of the three reasons mentioned previously. The estimate for self-employed workers is insignificant. Women are less likely to see their job as sustainable but the effect is only significant at the 10 per cent level. Migrant workers are significantly less likely than non-migrant workers to believe their job is sustainable. The occupational controls suggest that craft and service workers and those in unskilled elementary positions are less likely to see their job as sustainable when compared to managers, professionals and technicians. Since these positions typically have worse working conditions than those of professionals and managers, they warrant further attention.

Model 2 adds measures of work-life balance, working time, physical demands and perceptions of health and safety risk. These measures do not eliminate the differences between age groups, nor the differences between occupational groups. Poor work-life balance contributes to a sense that a job is not sustainable in later life, as does more physically demanding work. Those who feel that their health and safety is at risk because of their job are half as likely to consider the type of job as sustainable in the long term. Working hours do not have a significant impact on perceived longevity.¹² This may be because workers do not see their current hours as a fixed aspect of the occupation.

Including these additional controls reduces the effect of craft occupations, suggesting that part of this occupation effect is due to these measured aspects of job conditions, such as more physically demanding work. However, the more pessimistic view of job sustainability among service and elementary workers remains significant.

Model 3 considers the impact of economic sector instead of occupations. We find that, compared to those in the retail/wholesale and hospitality sectors, those in the transport sector and in public administration are more optimistic about their work sustainability, even when specific working conditions are held constant.

¹² Shift/night work was also insignificant and so was dropped from the model due to its correlation with perception of work-life balance.

2.5 SUMMARY

This chapter has sketched out the experience of Irish older workers. The share of older workers in the Irish labour market has increased dramatically over the last 20 years and is projected to grow further. The chapter mapped out the nature of employment for this group across several measures.

Older workers diverge from workers under the age of 55 in important ways. Mainly, older workers tend to work both longer and shorter hours, and are much more likely to be self-employed. Beyond this, older workers hold positive evaluations of their working conditions and their longevity at work, though perceived job sustainability among workers of all ages is shaped by occupation and working conditions. As the data we draw on is cross-sectional, we cannot rule out that this is due to a selection effect.

A further issue in interpreting these cross-sectional results is the difficulty of disentangling age, period and cohort effects. While we can observe some period effects with trend data (e.g. unemployment rates for all age groups increased during the recession), it is not possible to separate a cohort effect from an age effect. For example, older workers may experience different labour-market outcomes than younger workers because they entered the labour market in a period of relative affluence (cohort effect) or because they have accumulated more experience over time (age effect). Separating these effects would require tracking the effects of different cohorts longitudinally.

While older workers may hold favourable subjective views of work and working conditions, in the following chapter we turn to measures of their labour-market behaviour.

CHAPTER 3

Retaining Older Workers in Employment

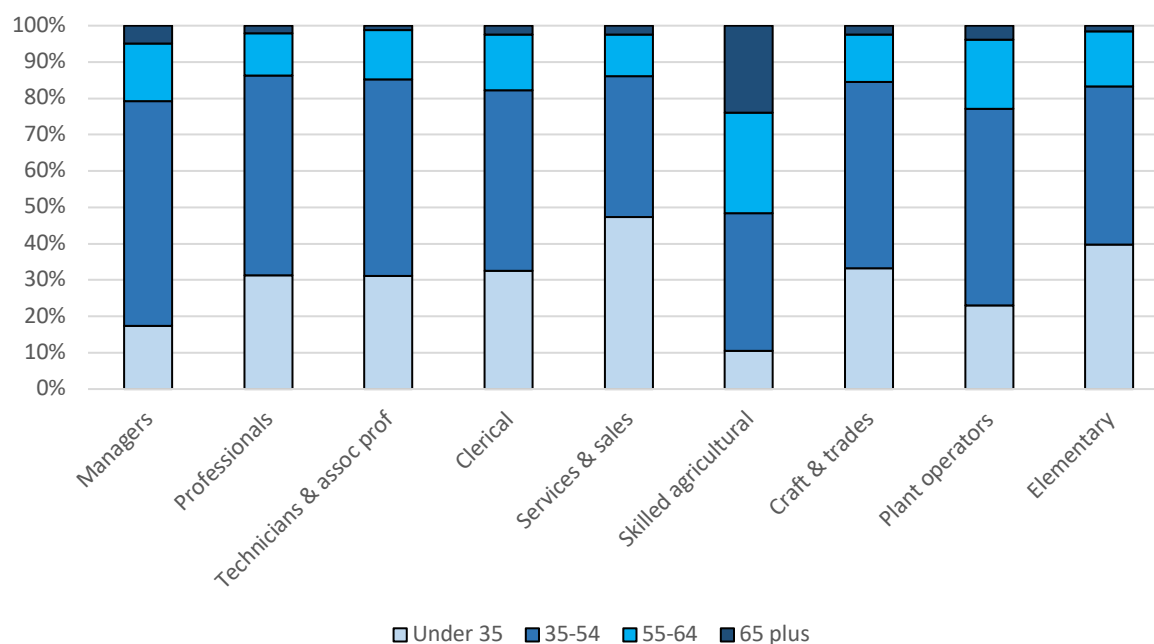
In the previous chapter we saw that there were differences in workers' perceptions of whether it would be possible to remain in their job until the age of 60 (or for the next five years if aged 55 or over) depending on their occupational positions and sectors. Those in elementary positions, in service jobs or craft positions were most pessimistic about their ability to remain in employment. We found that workers in the transport and public administration sectors were significantly more positive about the longevity of their jobs compared to those in the retail/wholesale and accommodation sectors.

In this chapter we examine whether these perceptions reflect the reality of working patterns among older workers. We first provide an overview of the occupational and sectoral distribution of workers by age group. We then use cohort analysis to investigate the retention rates of different jobs and sectors. We also consider whether retention patterns differ for men and women. The reasons for leaving work early (between age 55 and 64 years) are then compared across sectors and occupations, to examine whether certain push and pull factors predominate in different types of jobs.

3.1 OCCUPATIONS, AND SECTORS OF OLDER WORKERS

The previous section shows that workers' perceptions of their ability to remain in the same job at older ages varies by occupation. This section considers the occupations and sectors in which older workers actually participate. In Figure 3.1 we present the age composition of different occupational groups. It shows clearly that skilled agricultural occupations have a much higher proportion of older workers than any other occupation.¹³ Older workers also make up a higher proportion of managers and plant operators. In the case of managers, this is likely to reflect promotion to higher-level jobs with increasing experience and seniority. In the case of plant operators, the older age profile is likely to reflect the longer-term contraction of the manufacturing sector, which will lead to an ageing of the workforce due to lower recruitment of younger workers.

¹³ There is a very high overlap between this occupational group and the agricultural sector, although some of those in the latter sector may also work in different occupations, e.g. unskilled elementary jobs, professional (vet).

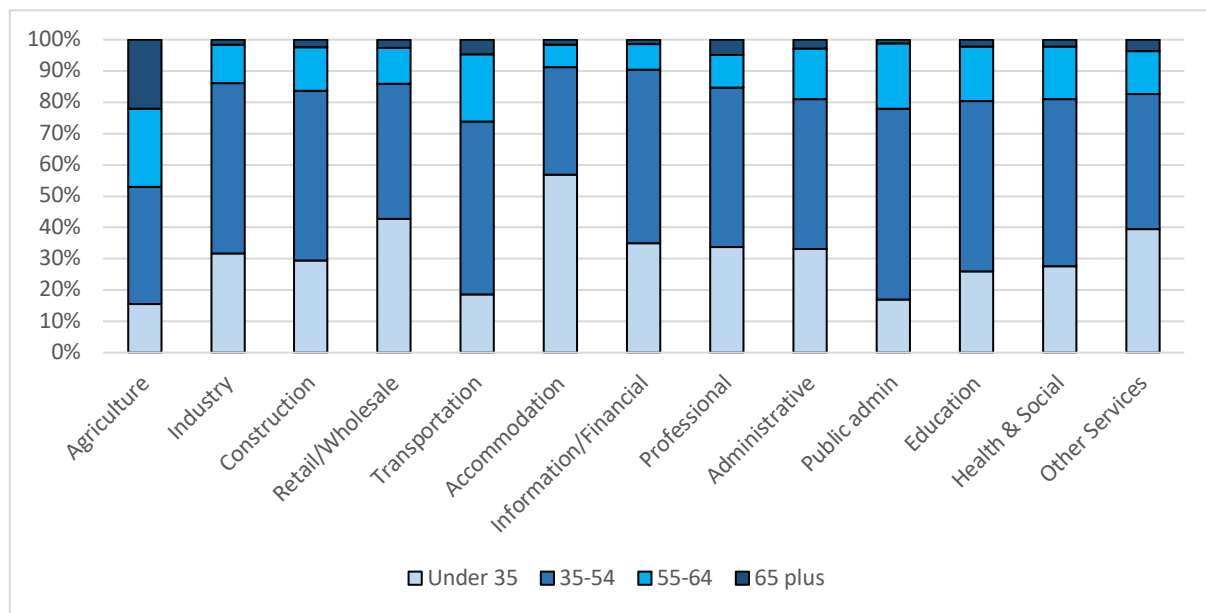
FIGURE 3.1 AGE COMPOSITION OF OCCUPATIONAL GROUPS (%) (2018)

Source: Labour Force Survey, 2018. Authors' calculations.
Note: The figures add to 100 per cent within occupations.

It is also informative to examine this information in a slightly different way, by looking at the occupational distribution of older workers compared to younger workers. Older workers (aged 55 or more) are over-represented in skilled agricultural, plant operator occupations and managerial locations¹⁴ which have very different working conditions. On the one hand, managerial-level jobs that are likely to be well-rewarded have low levels of physical demands but higher demands in terms of time pressure and job stress (Russell et al., 2016). On the other hand, skilled agriculture and plant operator jobs tend to involve higher levels of physical demand but lower levels of job stress. These results suggest that workers aged 55 to 64 and those aged over 65 hold different labour-market positions.

Lastly, a significant portion of older workers hold elementary occupations, which are traditionally low-quality jobs with poor pay and conditions. Since poor health outcomes and poor conditions can affect early exit, it is worth noting the number of older workers who hold such positions.

¹⁴ Table not shown – 11 per cent of those aged 55 plus are in managerial jobs compared to 9 per cent of workers aged under 55. The figures for skilled agriculture are 13 and 3 per cent respectively and, for plant operators, 8 and 6 per cent respectively.

FIGURE 3.2 AGE COMPOSITION OF WORKERS BY INDUSTRIAL SECTORS (%) (2018)

Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' calculations.
Note: Includes employed and self-employed.

Figure 3.2 shows the age composition of economic sectors. Workers aged 55 and over represent a larger share of workers in the agricultural sector (47 per cent), transport sector (27 per cent) and public administration sector (22 per cent), compared to their share of total employment (17.3 per cent). The share of older workers is much smaller than average in the retail sector (14 per cent), accommodation sector (14 per cent) and information/financial sector (10 per cent). This suggests that these three sectors may have a problem with retaining or hiring older workers, for varying reasons. For example, fewer older workers may have the skills required in some jobs in the innovative information sector, or the financial sector may offer good financial incentives for earlier retirement to their older workers.

3.2 RETENTION RATES

To measure how well different occupations and economic sectors perform in terms of retaining older workers, we adapt the measure of retention used by the OECD: employees currently aged 60 to 64 with job tenure of five years or more as a percentage of employees aged 55 to 59 five years previously (OECD Scoreboard for Older Workers;¹⁵ Martin, 2018). We extend the definition to include the self-employed, although we also examine the rates of employees separately. Martin's analysis shows that the retention rate for Ireland was consistently higher than the

¹⁵ <http://www.oecd.org/employment/emp/ageingandemploymentpolicies.htm>

average for OECD countries, and was 10 percentage points higher in 2015 (Table 3.1). The figures also show a sharp fall in the Irish retention rate between 2005 and 2010 due to the onset of the recession. By 2015 the rates had returned to the 2005 level.

TABLE 3.1 RETENTION RATE OF EMPLOYEES AGED 60-64 YEARS, IRELAND AND OECD AVERAGE (%)

	2005	2010	2015
Ireland	58.5	49.4	58.0
OECD	38.8	45.1	48.6

Source: Martin, 2018.

In Table 3.2, we examine changes in retention rates by gender for all employed over the period 2012 to 2018. While we do not report the retention rates during the recession, it might be possible that the low retention rates seen in the earlier recovery period were due partly to the incentivised early retirement schemes that took place in the public service during the recession. We see that the retention of those aged 60 to 64 has increased rapidly since 2012, with the economic recovery. Overall there is an upward trend in retention rates for the period. In 2018, 71.2 per cent of workers were retained compared to 55.3 per cent in 2012. The retention rate fell slightly between 2017 and 2018; this is driven by a larger fall for men, for whom the retention rate declined by four percentage points. Women's retention rate was consistently lower than men's. The gender gap in retention rates at 60 to 64 is narrower than the differences in employment rates shown in Chapter 2 (Figure 2.3). This is because women's rates of employment are already considerably lower at 55 to 59 years. The retention rates show that, even among women still employed in their late 50s, women are less likely to be in employment in their early 60s than men. In section 3.3, we explore gender differences in the reasons for leaving early.

TABLE 3.2 TRENDS IN RETENTION RATES OF WORKERS AGED 60-64 YEARS BY GENDER, IRELAND 2012-2018 (%)

	Male	Female	Total
2012	54.0	57.5	55.3
2013	56.7	55.9	56.4
2014	61.5	59.8	60.8
2015	71.1	62.3	67.3
2016	72.0	62.8	67.8
2017	76.3	67.9	72.5
2018	73.2	68.7	71.2

Source: Labour Force Survey. Authors' calculations.

Notes: Includes employees and self-employed. In each case we compare those aged 60 to 64 in employment with 5 years' tenure to all those 55 to 59 employed 5 years previously. The figure for 2018 refers to Q4 2017 to Q3 2018 due to data availability.

3.2.1 Retention rates by sector

While the overall retention rates are important for the economy, the rates in particular sectors and occupations are informative in highlighting where conditions are less conducive to the retention of older workers and where policy might be usefully directed.

Across the workforce as a whole, Table 3.3 shows that the highest retention rates are observed in the agriculture and construction sectors. This is due in part to the high concentration of self-employed workers in these sectors, who tend to work longer (see Chapter 2). When the analysis is confined to employees, we see that retention rates remain high in construction, though the number of observations is small; there are too few employees in agriculture to calculate a separate retention rate. The employees' retention rate is highest in the administrative and support services sector.¹⁶

The lowest retention rates overall are in health, education and industry. Amongst employees, the lowest retention rates are in health, education and other services. This contrasts with the findings on perceived ability to continue working in the same/similar job outlined in Chapter 2, where those in public administration were more positive. This suggests that the early exits in public administration may be related to choice rather than constraint, and facilitated by more generous pensions in the public sector and the incentivised early retirement schemes introduced in response to the fiscal crisis (O'Connell, 2013).

¹⁶ This sector includes businesses such as rental and leasing agencies, employment agencies, travel agencies, building service providers, etc.

A similar process is likely to operate in the education and health sectors, which also have a higher proportion of public sector workers (ibid).

TABLE 3.3 RETENTION RATES BY SECTOR 60-64 YEARS 2018¹ (%)

	All Employed	Employees
Agriculture	100.3	
Industry	65.3	69.7
Construction	100.6	[83.8]
Retail/Wholesale	73.3	76.2
Transportation	86.0	68.0
Accommodation	63.1	[75.8]
Administrative & Support Activities	78.2	85.9
Public Admin.	76.4	74.8
Education	59.2	58.0
Health & Social Work Activities	62.5	57.9
Other Services	61.2	52.3
Total	71.1	64.4

Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' analysis.

Note: 1. Where there are 30-49 persons in a cell, estimates are considered to have a wider margin of error and should be treated with caution. These cells are presented with parentheses []. Cells with fewer than 30 cases are excluded. Retention rates can be greater than 100% if the number of 60-64 year-olds employed is greater than the number of 55-59 year-olds employed in the sector five years earlier. This could be due to migration, people changing sectors or an improved economic situation in the sector.

2. Other services includes Information/Financial/ Real estate/ Professional/Arts.

To assess if the overall change in retention rates observed over the last five years was sector-specific, we compare the 2018 results to those pertaining in 2013. The increase in retention was apparent in almost all sectors. However, there was very little increase among health-sector employees (less than one percentage point compared to the average of 17 percentage points for all employees). The increase in retention rates was also well below average in the 'other services' sector. The decline noted for those in the accommodation sector may be due to measurement error in 2013 because of small numbers.

TABLE 3.4 RETENTION RATE 60-64 YEARS: 2013 AND 2018¹ (%)

	All workers			Employees		
	2013	2018	Change (2018-2013)	2013	2018	Change (2018-2013)
Agriculture	86.6	100.3	13.7			
Industry	41.4	65.3	23.9	36.2	69.7	33.5
Construction	41.0	100.6	59.6		[83.8]	
Wholesale/retail	57.6	73.3	15.7	51.1	76.2	25.1
Transportation	56.8	86.0	29.2	[43.6]	68.0	[24.4]
Accommodation	[77.1]	63.1	[-14.0]		[75.8]	
Administrative	[59.7]	78.2			85.9	
Public admin.	[44.9]	76.4		[42.4]	74.8	[32.4]
Education	45.4	59.2	13.8	45.3	58.0	12.7
Human health	59.2	62.5	3.3	57.3	57.9	0.6
Other services ²	60.0	61.2	1.2	47.4	52.3	4.9
Total	56.1	71.1	15.0	47.5	64.4	16.9

Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' analysis.

Note: 1 For consistency the 2013 measure refers to Q4 2012 to Q3 2013 to look at change over a five-year period. Retention rates can be greater than 100% if the number of 60-64 year-olds employed is greater than the number of 55-59 year-olds employed in the sector five years earlier. This could be due to migration, people changing sectors or an improved economic situation in the sector.

2 Includes Information/Financial/ Real estate/ Professional/Arts.

Where there are 30–49 persons in a cell, estimates are considered to have a wider margin of error and should be treated with caution. These cells are presented with parentheses []. Cells with fewer than 30 cases are excluded (blank).

3.2.2 Retention rates by occupation

In Table 3.5 we examine retention rates for occupational groups. In 2018 the highest level of retention occurred among skilled agricultural workers, machine operators and managers. Excluding the self-employed, the highest rates were among machine operators, managers, craft workers and clerical workers. The relatively high levels of retention among the craft workers and machine operators are somewhat surprising given the manual nature of this work and, in the case of machine operators, the lower skill levels. This finding is also inconsistent with perceived ability to remain in the job among this group found in Chapter 2. Further analysis showed that the retention rates of those aged 50 to 54 were also relatively high among these groups. It is possible that a selection effect is operating here. These occupations were heavily hit by recession, which may have resulted in a shake-out of workers at an earlier period so that those still in the workforce in the recovery period (2013 to 2018) were more selective. When we examine the period 2008 to 2013 in Table 3.5, we see a much lower retention rate in these two occupations.

The lowest retention rates occur among professional workers and those in elementary occupations. The factors behind early exit are likely to differ for these two groups. In section 3.3, we compare the reasons for leaving early across different occupational groups.

TABLE 3.5 RETENTION RATES 60–64 YEARS BY OCCUPATION 2018 (%)

	All Employed	Employees
Managers	83.8	75.7
Professionals	56.1	49.3
Technicians & Assoc. Profess.	69.9	68.8
Clerical	78.2	75.2
Service & Sales	70.8	71.8
Skilled Agriculture	100.5	
Craft workers	76.6	77.3
Machine Operators	87.5	80.7
Elementary occupations	52.3	52.8
All	71.4	64.8

Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' analysis.

Comparing the 2018 retention rates by occupation to the 2013 retention rates, Table 3.6 shows that the increase was lower than average among managerial and elementary occupations. In the case of professionals, retention to age 60–64 actually declined slightly over the period. Increases were particularly strong among craft workers and machine operators, and among managers who were not self-employed.

TABLE 3.6 RETENTION RATES 60–64 YEARS BY OCCUPATION CHANGE 2013–2018 (%)

	All Employed			Employees		
	2013	2018	Change	2013	2018	change
Managers	77.8	83.8	6.0	39.1	75.7	36.6
Professionals	57.1	56.1	-1.0	50.7	49.3	-1.4
Technical & Assoc. Profess.	51.1	69.9	18.8	47.5	68.8	21.3
Clerical	54.8	78.2	23.4	56.5	75.2	18.7
Service & Sales	56.3	70.8	14.5	52.4	71.8	19.4
Skilled Agriculture	82.8	100.5	17.7			
Craft workers	41.3	76.6	35.3	31.1	77.3	46.2
Machine Operators	49.8	87.5	37.7	42.9	80.7	37.8
Elementary	44.8	52.3	7.5	45.0	52.8	7.8
All	56.2	71.4	15.2	47.6	64.8	17.2

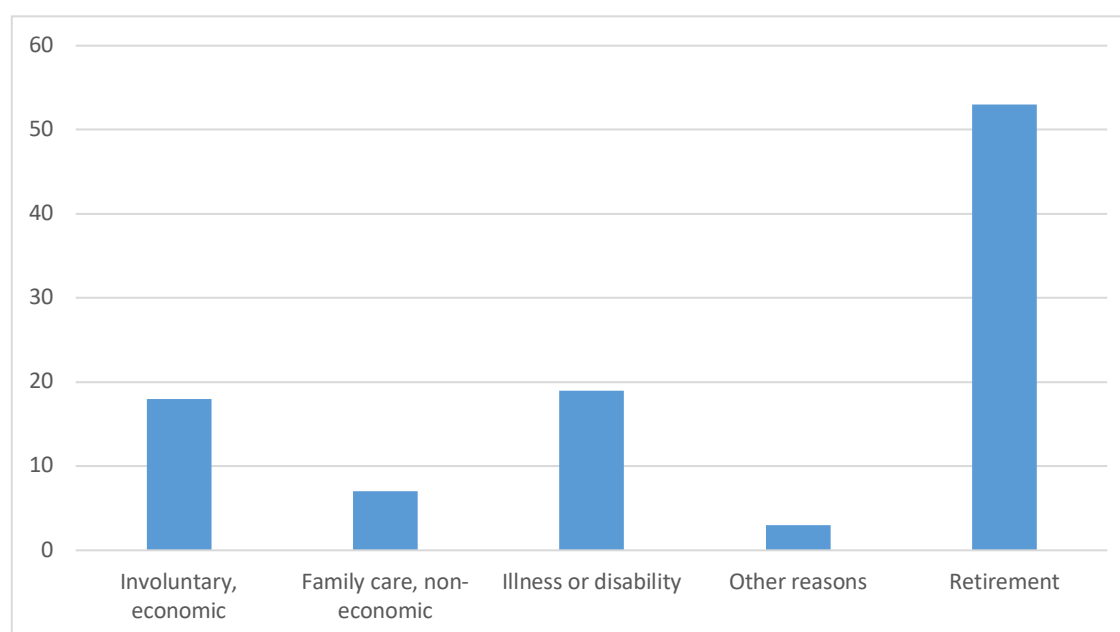
Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' analysis.

3.3 REASONS FOR EARLY EXITS FROM EMPLOYMENT

In this section, we use the 2017 and 2018 Labour Force Survey to examine the reasons for early exit. We define ‘early leavers’ as those who left their job between the ages of 55 and 59 and who were non-employed at the time of the survey.¹⁷ The Labour Force Survey collects this information only for workers who left their job in the last eight years. We compare the reasons for exit across occupational and sectoral groups. We consider three sources of variation between older workers who leave employment. First, we explore differences between men and women, and between age groups. Second, we examine differences in household composition, measuring if respondents have a working partner. Finally, we examine differences between occupation and industry (of the last job). We focus on four types of employment exit throughout this section: involuntary job loss (dismissal, redundancy, end of temporary contract), family-related exit (childcare or family care), illness or injury-related exit (including disability), and retirement (early or normal). Since it is possible for early leavers to re-enter the labour force, we focus only on respondents who have at least a single year gap between the interview year and the year in which they left their previous position.

Figure 3.3 presents five main reasons for leaving employment for workers aged 55 to 59. We focus on this age group only as an older cohort is quite likely to leave employment for retirement reason mostly. Over half of early leavers cite retirement as the reason for leaving. The second most common reason for early leaving was involuntary job loss; 18 per cent of respondents experienced this type of exit. A similar proportion left due to illness or disability (19 per cent) while 7 per cent left for reasons of child or family care.

¹⁷ It is possible that this is not a final exit for some respondents who may re-enter employment. This is more likely in the case of respondents who had experienced involuntary job loss most recently in the eight-year observation window. To limit this issue, we focus only on leavers who have been out of the labour force for at least a year.

FIGURE 3.3 REASONS FOR LEAVING JOB BETWEEN THE AGES OF 55 AND 59 (%) (2018)

Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' analysis.

Note: We focus only on respondents aged 55 to 59. Further, respondents must have at least a year between the interview year and the year in which they left the previous job.

Differences in reasons for leaving are explored using multinomial regressions. This method allows us to look at the factors associated with different types of job exits. For the models, we take early retirement as the reference category; i.e. those who said they had left their job between the ages of 55 and 59 due to retirement.¹⁸ The results show the influence of each control on all other types of exit relative to early retirement (Rabe-Hesketh and Skrondal, 2012). In other words, the results for each category of responses contain the relative risk of experiencing that response, relative to retiring early. A relative risk ratio greater than one implies that the group has greater risk of the type of exit than the reference group. A relative risk ratio of less than zero means that the group has a lower risk of this type of exit than the reference group. We are interested in the patterns of exit across occupations and sectors but, due to the over-lap between these categories, we run the models separately with occupational (Table 3.7) and sector controls (Table 3.8).

As the data are cross-sectional, these results should be read as descriptive rather than causal. The reason for leaving may also be influenced by normative processes. An involuntary job loss might be reframed as retirement if it occurs closer to the age of pension age, since being 'retired' is a more socially valued economic status than being 'unemployed', which can be stigmatising. Similarly, women may be

¹⁸ As a robustness check, we also ran the models for respondents aged 55 to 64 and found similar results. The results are presented in Tables A1 and A2 in the appendix, corresponding to Tables 3.7 and 3.8 respectively.

more likely than men to define caring rather than retirement or job loss as the reason for early exit because of prevalent gender norms, even if the organisational process preceding the exit was the same. We first consider differences between occupations in Table 3.7.

TABLE 3.7 RELATIVE RISK RATIOS OF EARLY EXIT TYPE RELATIVE TO RETIREMENT, INCLUDING OCCUPATION CONTROLS (EXITED AGED 55–59 YEARS)

VARIABLES	Ref: (early) Retirement		
	Model Involuntary	Model Family leave	Model Illness or disability
Ref: Male			
Female	0.78	5.40***	0.92
Age when left	0.81***	0.83***	0.83***
Ref: Manager/professionals			
Technicians	2.42**	2.04	3.01***
Clerical workers	3.15***	1.81	1.74
Service workers	8.35***	12.70***	13.10***
Craft & Agriculture	14.05**	32.13**	21.24***
Plant operatives & Elementary workers	9.74***	18.40**	20.43***
Ref: Single			
Partner works	0.76	0.96	1.01
Partner does not work	0.90	1.25	0.93
Year of survey	1.22***	1.01	1.06
Observations	1,565	1,565	1,565

Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' analysis.

Note: We focus only on respondents aged 55 to 59 who have at least one year between the time of change and the interview year.

Note: *** p<0.001, ** p<0.01, * p<0.05, # P<.10

TABLE 3.8 RELATIVE RISK RATIOS OF EARLY EXIT TYPE RELATIVE TO RETIREMENT, INCLUDING SECTOR CONTROLS (EXITED AGED 55–59)

VARIABLES	Ref: (early) Retirement		
	Model Involuntary	Model Family care	Model Illness and disability
Ref: Male			
Female	1.11	3.30***	0.84
Age when left	0.79***	0.77***	0.78***
Ref: Industry			
Agriculture	3.12	7.29	3.34
Construction	1.37	2.77	4.48***
Wholesale/Retail	1.25	2.87*	2.48*
Transport	0.412**	0.01	1.73
Accommodation	0.44	1.10	2.50*
Info/Administrative	0.20***	0.60	0.24***
Public admin	0.06***	0.04***	0.16***
Education	0.02***	0.16***	0.18***
Health	0.10***	0.69	0.80
Arts/Other services	1.92	1.82	2.36
Ref: Single			
Partner works	0.66*	0.82	0.90
Partner does not work	0.76	1.30	0.82
Year of survey	1.21***	1.04	1.07*
Observations	1,584	1,584	1,584

Source: Labour Force Survey, Q4 2017 to Q3 2018. Authors' analysis.

Note: We focus only on respondents aged 55 to 59 who have at least one year between the time of change and the interview year.

Note: *** p<0.001, ** p<0.01, * p<0.05, # P<.10

3.3.1 Exits due to job loss

Model 1 (Table 3.7) focuses on worker differences among involuntary leavers. This group experienced redundancy, dismissal, or the end of a temporary contract. There are significant occupational differences in this group.

Looking first at personal and family characteristics, we find that, when occupation and other factors are controlled, older women and men are just as likely to experience job loss relative to retirement. The age results shows that workers closer to age 59 years are less likely to experience job loss relative to retirement compared to workers closer to age 55. This suggests that early retirement schemes may be more accessible to those who are closer to age 60.

Early leavers whose partners do not work have similar risks of citing job loss (versus retirement) when compared to single respondents, while those with an employed partner are less likely to have exited due to job loss, suggesting a form of shared advantage within couples.¹⁹ However, this finding is only significant in the model with sector controls.

Occupation has a strong influence on the likelihood of exiting due to job loss rather than retirement. All occupations are more likely to experience job loss as their exit route compared to managers and professionals. The relative risks of experiencing job loss increases as an individual's position in the occupational hierarchy declines. Service workers, agricultural/craft workers and elementary workers/plant operatives are significantly more likely to experience involuntary exit, compared to retirement, than managers/professionals. In short, early leavers in lower occupational groups are more likely to have lost their job for economic reasons than to have retired early when compared to upper occupational groups like managers and professionals.

There are also sector differences in who experiences job loss (see Table 3.8, column 1). Compared to the industry sector, early leavers in transport, administrative services, public administration, education and healthcare are much less likely to lose their job than they are to retire. However, workers in construction, wholesale/retail, agriculture and accommodation are as likely as industry-sector workers to experience job loss relative to retirement.

3.3.2 Caring/family exits

The second outcome (Table 3.7) considers early leavers who left work to care for family; again the comparison group is those who retired early. Within the 55 to 59 age category, older workers are less likely to leave for family reasons compared to retirement and women are 5.5 times more likely than men to leave for family reasons relative to retirement. Partner's employment status is not significant.²⁰

There are strong occupational differences among those who left for family reasons. Service, craft/agricultural and elementary and plant workers are much more likely to leave for family reasons than they are to retire early, compared to managers and professionals. Professionals, technicians and clerical workers are equally likely to

¹⁹ Correlation in the employment outcomes of older workers may arise from linked retirement decisions, shared characteristics (e.g. educational/class homogamy within couples) or shared local labour-market characteristics.

²⁰ We tested the effect of age and number of children in the family unit and it was not significant. We therefore excluded it from the final models.

leave for family reasons, compared to retiring, than managers. Once more, a hierarchy between occupations emerges, where elementary and manual occupations are more likely to leave for family reasons, than for early retirement when compared to professionals, managers, and technicians.

As before, sectoral differences also emerge between leavers who leave for family reasons, and those who retire early (Table 3.8, Model 2). Those in agriculture and wholesale/retail have higher relative risks of leaving for family reasons relative to retirement, when compared to those in industry. Early leavers in transport, public administration and education all have lower relative risk of leaving for family reasons relative to early retirement than those in industry. Those in construction, transport, accommodation and other services have similar relative risks to industry-sector workers in leaving for family/care reasons relative to early retirement.

3.3.3 Exits due to illness/disability

Finally, Model 3 (Table 3.7) considers worker differences in leaving for illness or disability, relative to retiring. This exit type too contains significant occupational differences that break the distribution into two groups. Service, agricultural, craft, plant and elementary workers have significantly higher relative risks of leaving due to illness or disability, relative to leaving due to retirement, compared to managers, professionals and clerical staff. This distribution is made up of two groups: those who work manual jobs and those who do not.

Once again, the model contains differences that go beyond occupation and sector. Older workers are less likely to exit for this reason (rather than retire) when compared to younger workers, while male and female respondents are equally likely to leave due to illness (rather than retire).

Last of all are the sectoral differences among early leavers who cite illness and disability versus retirement (Table 3.8). Those in construction and wholesale/retail have higher relative risks of leaving due to illness/disability compared to those in the industry sector, while those in information and administration, public administration and education have a much lower risk of exiting in this way (relative to retirement). The other sectors have relative risks of leaving due to illness similar to industry-sector workers.

Generally, there are four patterns worth noting in Table 3.8. First, there are occupational differences in terms of job loss, family-related exit, and illness or disability exit when compared to retirement. Leavers who previously held manual positions are more likely to cite each of these than they are to cite early retirement, while leavers who previously held high-ranking occupations are more likely to cite retirement than the other reasons for exit. Second, there are sector differences in terms of early leavers, with public-sector workers showing a lower likelihood of leaving work for the listed reasons (compared to retirement) than private-sector workers. Third, personal and household characteristics (such as partner status) cannot explain the difference between lower and higher occupational groups in their respective early exit types. This also applies to the differences between public and private sectors mentioned earlier. Lastly, those in the younger part of the age group 55–59 years are more likely to exit employment due to illness, job loss or injury compared to those aged 58/59 years, suggesting that interventions designed to improve job sustainability should occur earlier in the life cycle rather than later.

While we cannot be entirely sure that early retirement is completely favourable and voluntary, it is likely that all three other types of early exit are more constrained; this is particularly the case with exits due to involuntary job loss or illness. Previous research has shown that involuntary exits among older workers are much more likely to be associated with a decline in psychological and material well-being than voluntary exits (Topa et al., 2018; Halleröd et al., 2013). Specifically, employment exit that relies on assistance payments and income benefits is correlated with health-related wellbeing problems, even when pre-retirement health is controlled for (Halleröd et al., 2013). Elsewhere, Bolsang et al. (2013) find that involuntary retirement has a strong and negative effect on satisfaction with income and a weaker effect on satisfaction with leisure when compared to voluntary retirement. Further, they find that involuntary retirement has a negative effect on life satisfaction that cannot be explained by changes in income, free time and health.

3.4 SUMMARY

In this chapter, we see that there are distinct occupational and sectoral differences in the extent to which older workers are retained in the workforce and in the types of early exit that occur. Descriptive results show that the retention of older workers is better in the agricultural, construction and transport sectors. These are also sectors where risk of fatal injury is higher, which we return to in Chapter 4. Much of these sectoral differences is driven by patterns of self-employment. These sectors have high levels of self-employed workers who have greater freedom to determine their age of retirement and may also have a greater financial imperative to continue to work due to differences in pension coverage. The lowest retention rates of employees aged 60 to 64 occurs in health, education and other services, suggesting a greater scope for increased retention. Results from multivariate analysis show that, among early leavers, exits due to involuntary job loss and illness/disability are most common in agriculture, construction, retail/wholesale and accommodation. Early exits due to illness/disability were less structured by sector and more by occupation.

Descriptive results show that retention rates are also particularly low in certain manual occupations and low-skilled service occupations. These are also occupations where multivariate analysis shows a higher proportion of exits due to job loss, and significantly higher relative risks of leaving early due to illness or disability. Interventions to prevent work-related illness and injury and to adjust environment and tasks to accommodate those with health issues appear particularly important for these occupations. The higher likelihood of disability/health exits for this group may reflect cumulative exposure to poor working conditions over the life-time and is therefore not just relevant to older workers.

Early exits for caring/family reasons are more common among women and among those in lower-skilled service or manual jobs. The short-term opportunity costs of caring may be lower for this group because of lower wages; however, this will have implications for the pension income of these workers in the longer term.

CHAPTER 4

Fatalities among Older Workers

In this chapter we consider the relationship between ageing and worker fatalities. In the previous chapters we noted that, when sector and other factors are taken into account, non-fatal injury rates were lower among older workers than younger workers in Ireland, which is a pattern replicated in other countries (Crawford et al., 2009; Yeomans, 2011). However, previous research has also noted that older workers can take more time to recover from work-related injuries when they do occur (Laflamme and Menckel, 1995). Moreover, Salminen (2004) found that, while younger workers had a higher risk of non-fatal injury, older workers had a higher risk of fatal injury.

Annual reports from the Health and Safety Authority (HSA) suggest that work-related fatalities are more common among older workers. For example, the latest HSA report found that 55 per cent of work-related fatalities (including workers and non-workers) in 2017 occurred among those aged over 55. Similarly the HSA found that workers aged 55 to 64 were the largest age-group victims (26%) of work-related fatalities involving vehicles.²¹ While previous ESRI/HSA research in Ireland has examined work-related injury and illness, including the influence of age, there is a gap in knowledge about the relationship between fatal injury and age. It is not clear from the annual statistics how far the age profile of those fatally injured at work is influenced by the sectoral location of older workers. Worker fatalities are highly concentrated in a small number of sectors, namely agriculture, construction and industry; therefore in this chapter we analyse fatality rates by age within sectors. We are also concerned with how fatalities among older workers are evolving over time: are fatality rates for older workers decreasing in line with the overall trend found up to 2013? (Russell et al., 2015).

The data on fatal injuries at work come from the HSA. All deaths due to accidents at work are reported to the HSA. The figures do not include deaths attributable to occupational diseases or work-related illness, nor deaths that occur while commuting to and from work. The recorded figures include deaths due to injury to the worker carrying out the work or caused to other workers or non-workers present. The figures identify whether the person was a worker or non-worker, and we exclude non-workers from our analysis. The figures include deaths that occur

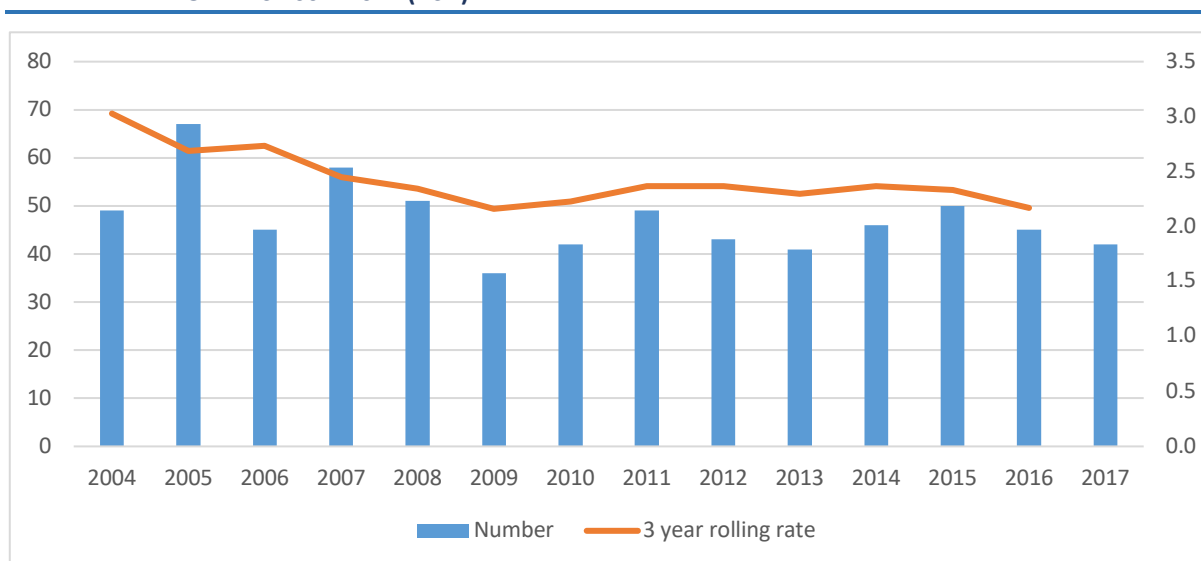
²¹ See HSA, https://www.hsa.ie/eng/Vehicles_at_Work/Work_Related_Vehicle_Safety/Work_Related_Vehicle_Statistics/WRVS_Fatalities_Report_2009-2013.pdf

while travelling for the course of work, though Drummond et al. (2016) note that vehicular deaths tend to be undercounted in the figures.²² Recent collaboration between the Road Safety Authority, An Garda Síochána and the HSA has meant that these work fatalities are more likely to be recorded in the most recent statistics.

4.1 FATALITIES TRENDS

The rate of worker fatalities per 100,000 workers has been halved, from 3.9 in 1998 to 1.9 in 2017 (HSA, 2018). Figure 4.1 focuses on the most recent period from 2004 to 2017. There has been a lot of variation in the number of annual fatalities for workers; it ranged from a low of 36 fatalities in 2009 to a high of 67 fatalities in 2005, with an annual average number of 47 fatalities over this period. However, it seems that since 2010 the number of fatalities has been more stable. Taking account of the number of workers in the Irish economy over the same period, the three-year rolling fatality rate declined from three per 100,000 workers in 2004 to 2.1 per 100,000 workers in 2016.

FIGURE 4.1 NUMBER OF FATALITIES AND 3-YEAR ROLLING RATE OF WORKER FATALITIES PER 100,000 WORKERS 2004–2017 (HSA)

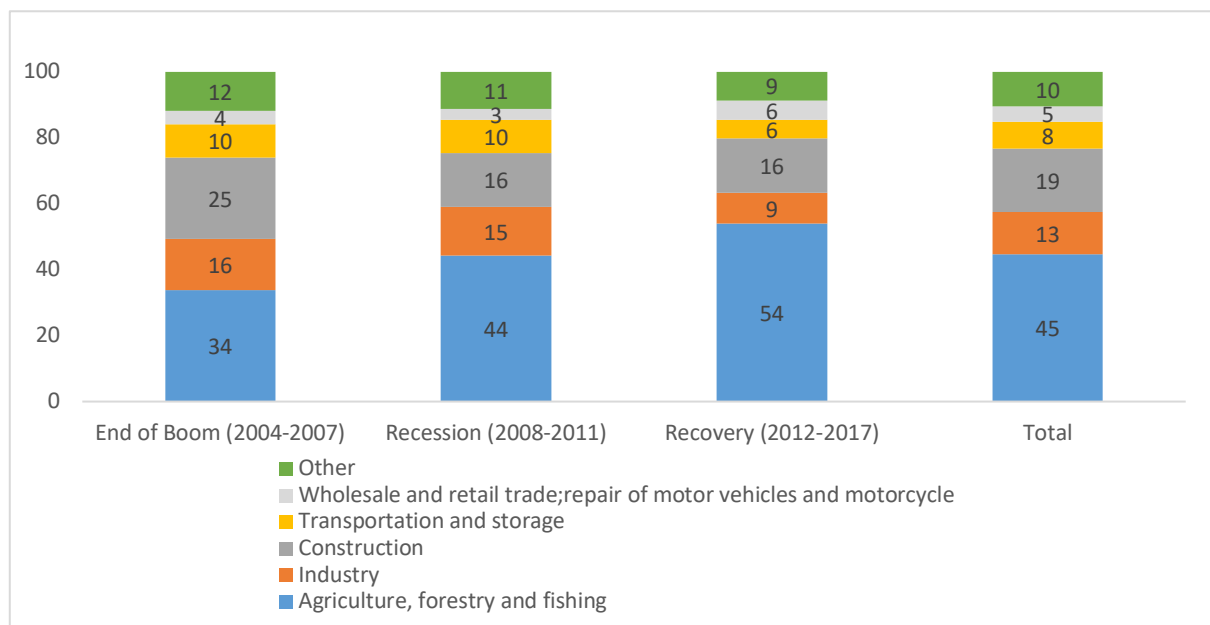


Source: Health and Safety Authority Statistics Fatality Data and CSO LFS data on N of workers.

²² Using data from coroners' reports, Drummond et al. found that only 11 of the 29 vehicular deaths involving workers had been reported to the HSA.

The HSA annual statistics reports published over the years showed that five economic sectors account for the vast majority of fatalities in Ireland. These five sectors, shown in Figure 4.2, accounted for 90 per cent of all fatalities during the period 2004 to 2017. It is in the agriculture, forestry and fishing sector that we observe the largest number of fatalities by far, followed by the construction and industry sectors. The agriculture, forestry and fishing sector accounted for 45 per cent of all fatalities between 2004 and 2017, and for over 50 per cent in some years. The construction sector accounted for 19 per cent of fatalities on average but for 25 per cent during the economic boom period when the workforce in the construction sector was at its peak. The remaining three sectors accounted for a much lower share of fatalities: at 13 per cent on average for industry, 8 per cent for transportation and storage, and 5 per cent for wholesale and retail trade.

FIGURE 4.2 PERCENTAGE OF FATALITIES BY ECONOMIC SECTOR, 2004–2017 (HSA)



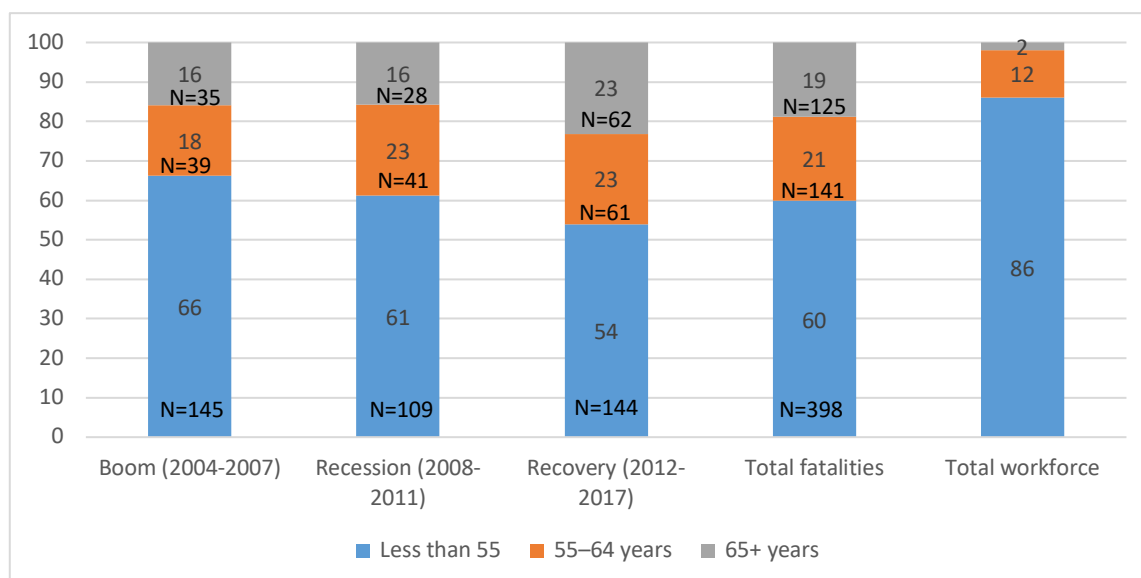
Source: Health and Safety Authority Statistics Fatality Database.

4.2 WORKER FATALITY RATES BY AGE

In Figure 4.3, we present the age composition of the victims of fatal injuries over time. Taking the period as a whole (2004–2017), 60 per cent of work fatalities were among those aged under 55 years, 21 per cent among those aged 55 to 64 and 19 per cent among those aged 65 and over. The proportion of fatalities among older workers increased over the three periods; in the later analyses we will test whether this is a significant trend. However, the age breakdown of people at work is quite different to the age breakdown of fatalities. On average between 2004 and 2017, 86 per cent of people at work were aged under 55, 12 per cent 55 to 64 and only 2 per cent over 65.²³ This suggests that both older age groups are highly over-represented in the fatality figures.

Drummond et al. (2016) found that, among worker deaths on the road, 13.8% were aged 56–65 years and 3.4% were aged over 65. These proportions are close to the presence of these age groups in the workforce, and therefore suggest that older workers are only marginally over-represented in this category of worker fatality.

FIGURE 4.3 AGE COMPOSITION OF VICTIMS OF FATAL INJURIES, WORKERS ONLY, 2004–2017 (%)



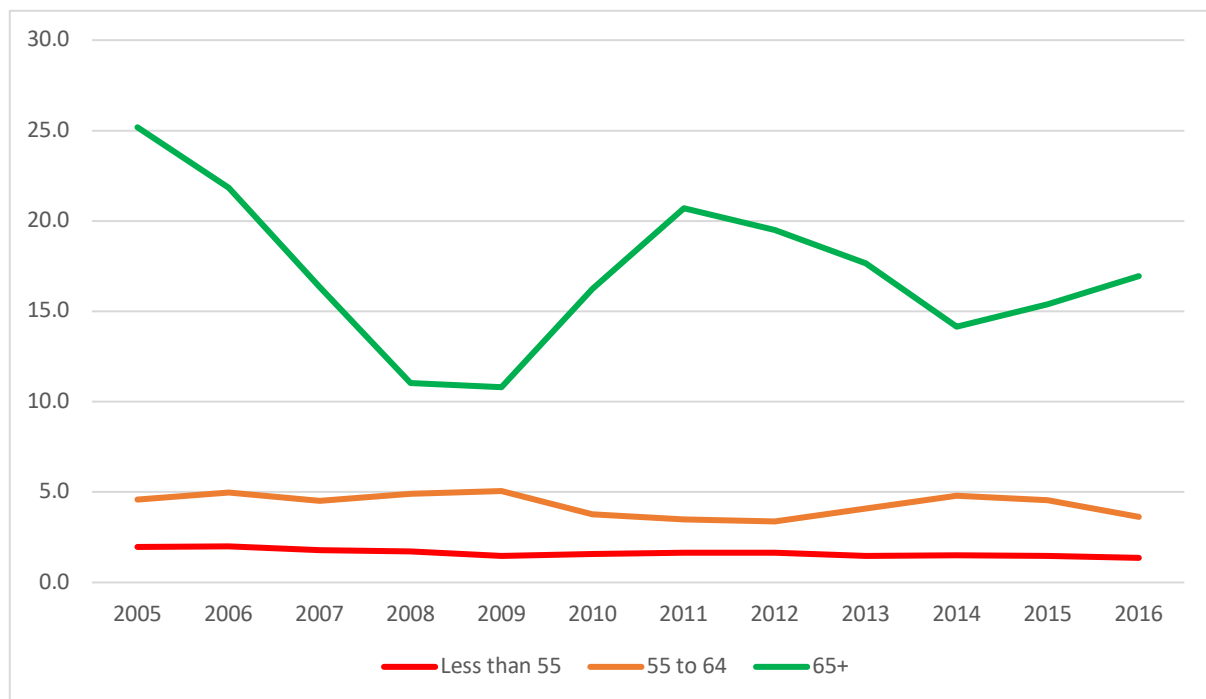
Source: Health and Safety Authority Fatality Database 2004–2017.

Note: Authors' calculations. Figure 4.3 shows the number of cases in each cell (N=...) as well as the corresponding percentage in each column.

²³ Authors' calculations.

Results from Figure 4.3 suggest that there is an over-representation of older workers among victims of fatal injuries. Taking account of the different size of these age groups, we report in Figure 4.4 the three-year rolling fatality rate for each of these age groups of workers for the period 2004 to 2017. Fatality rates increase with the age of the workers. The fatality rate is lowest for workers aged under 55, for whom the three-year rolling fatality rate never goes above two per 100,000 workers. For workers aged 55 to 64, the three-year rolling fatality rate is two and a half times higher than the average of their younger counterparts, with a highest value of five per 100,000 workers. Finally, the three-year rolling fatality rate is extremely high for the 65+ workers; it is 11 times greater than for the youngest group of workers on average. There is a lot of variation and no clear trend in the three-year rolling fatality rate for the over-65 age group, which ranges from a high of 25 per 100,000 workers in 2005 to a low of 11 per 100,000 workers in 2009. The rates are much more stable for those aged under 55 and for those aged 55 to 64.

FIGURE 4.4 THREE-YEAR ROLLING FATALITY RATES BY AGE GROUP, 2005–2016 (HSA)

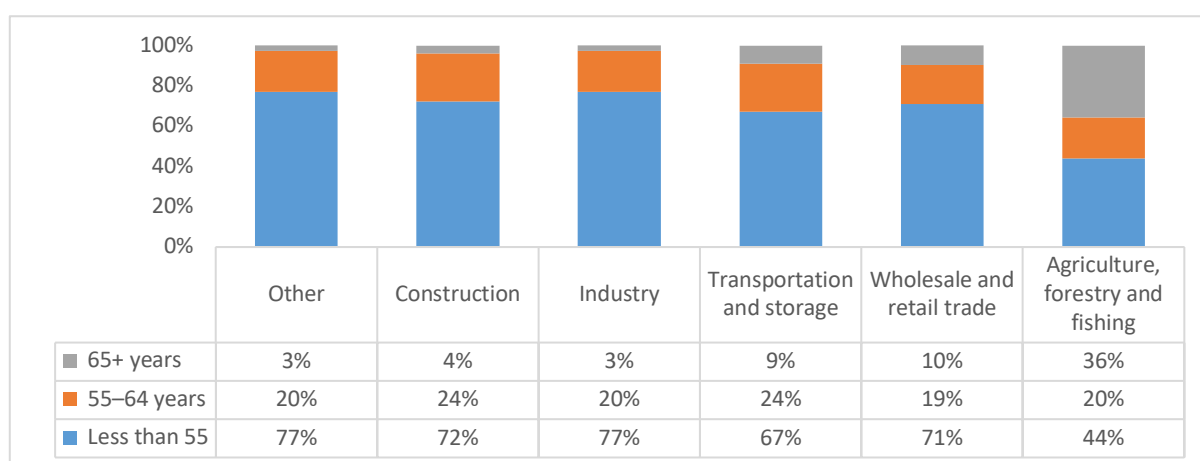


Source: Health and Safety Authority Statistics Fatality Data and CSO LFS data on N of workers.

The age breakdown of the fatality victims in Figure 4.5 shows the singularity of the agriculture sector compared to the other sectors. Indeed, in all five sectors except the agriculture sector, 70 per cent of the victims of fatal injuries are aged under 55 compared with only 44 per cent in the agriculture sector. However, there are no differences across all sectors for the age group 55–64 as they represent roughly 20

per cent of the victims. In all sectors except agriculture, there are very few victims over the age of 65 years: fewer than 3 per cent of all victims in the industry sector, up to 10 per cent in the wholesale sector. However, 36 per cent of the victims in the agriculture sector are aged 65 or over. As shown in the previous chapters, there is a high concentration of older, mostly self-employed, workers in the agriculture sector. In the following section, we take this composition into account to calculate age-specific fatality rates within sectors.

FIGURE 4.5 AGE COMPOSITION OF VICTIMS OF FATAL INJURIES BY HIGH-RISK SECTORS, 2004–2017 (HSA)



Source: Health and Safety Authority Statistics, 2018.

4.3 WORKER FATALITY RATES BY AGE AND SECTOR

We report in Table 4.1 the three-year rolling fatality rates for three age groups in three high-risk economic sectors over the period 2005 to 2016.²⁴ The rates show that, even taking account of the greater participation of older workers in the agriculture sector, the fatality rates are considerably higher for the 65-plus age group compared to younger workers in agriculture. In all three economic sectors, the fatality rates of workers appear to increase with age. However, given the small numbers involved and degree of fluctuation, it is difficult to discern the patterns by age or the trends over time. Therefore, we use statistical models to discern these underlying patterns.

²⁴ We did not report the fatality rates for the wholesale and transport sectors as the number of cases can be very small in some years as well as having large meaningless fluctuations.

TABLE 4.1 THREE-YEAR ROLLING FATALITY RATES PER 100,000 WORKERS BY AGE AND ECONOMIC SECTORS, HSA 2005–2016

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Under 55	Agriculture	9.3	12.8	13.3	14.0	12.1	14.0	17.3	17.2	17.2	15.3	15.0	14.1
	Industry	2.4	2.7	2.1	1.7	1.8	1.9	2.0	1.7	1.5	2.4	2.3	1.7
	Construction	6.7	5.7	4.6	4.5	4.1	4.2	4.9	6.4	5.5	5.4	4.7	4.8
55-64	Agriculture	10.3	11.6	13.9	16.3	21.8	18.9	17.8	13.5	18.0	23.0	26.6	20.7
	Industry	6.3	6.2	8.3	7.1	7.5	1.6	4.5	4.2	4.2	1.3	0.0	0.0
	Construction	9.2	11.1	10.4	15.3	16.4	12.9	14.1	16.5	16.5	17.0	16.6	18.4
65 plus	Agriculture	51.1	47.9	41.1	21.3	23.5	35.1	51.2	45.4	42.1	34.1	41.1	46.9
	Industry	38.7	18.8	0.0	13.9	13.9	27.1	13.3	13.3	0.0	0.0	0.0	0.0
	Construction	25.1	0.0	0.0	18.4	18.4	18.4	0.0	21.1	65.8	65.8	44.7	0.0

4.4 MODELLING FATALITIES ACROSS ECONOMIC SECTORS AND WORKERS AGE

The descriptive results presented in Table 4.1 suggested that, across all top three high-risk economic sectors, the fatality rates increased with the age of the workers. In this section, we use a grouped logistic regression to compare the risk of fatalities across the five high-risk sectors with the other sectors.²⁵ The results are presented in Table 4.2. Our group of reference is workers aged under 55 from the other sectors. The results presented in Table 4.2 are odds ratios. In Model 1 we only control for time and the age of workers. Over time, there is a slight significant fall in the risk of fatalities. Across all sectors (Model 1) the risk of fatalities for workers aged 55 to 64 is almost three times higher than for the youngest group of workers and is 11 times higher for the over-65 group.

²⁵ The results of statistical models of rare events have to be interpreted with some caution; the coefficients can be biased, particularly in the case of small sample size.

TABLE 4.2 GROUPED LOGISTIC REGRESSION OF FATALITIES (HSA), 2004–2017

Variables	Model 1	Model 2
Year	0.97***	0.99
Workers under 55 (Ref)	1	1
Workers aged 55 to 64	2.65***	1.81***
Workers aged 65+	11.26***	3.57***
Other (Ref)	1	1
Agriculture		30.76***
Industry		5.25***
Construction		14.46***
Transport		9.38***
Wholesale/Retail		1.73**
Pseudo R2	0.0260	0.0891
N all workers 2004–2017	28,338,982	28,338,982

Note: *** p<0.001, ** p<0.01, * p<0.05

In Model 2, we control for the distribution of workers of different ages across economic sectors. Controlling for economic sector reduces the effect of age, especially for the 65-plus age group where the odds ratio falls from 11.3 to 3.6. The odds ratio for the 55 to 64 age group declines from 2.7 to 1.8. This shows that a substantial part of the increased risk of older workers is due to their location in high-risk sectors. Nevertheless, even taking their sectoral location into account, older workers are significantly more likely to be fatally injured at work. The results for each sector reiterate the strong effect of sector. Compared to the reference group (other sectors), the risk of fatality is almost 31 times higher in the agriculture sector, 14.5 times higher in construction, nine times in transport, and five times higher in industry. There is no longer a significant reduction in the risk of fatalities over time.

To formally measure the extent of the relationship between the age of the workers and the likelihood of fatalities in each sector, we ran separate models for the five high-risk sectors as well as for all other sectors for comparison (last column). The results presented in Table 4.3 are odds ratios. For each of the models the dependent variable is the number of fatalities in the sector considered, and we control for the trend over time (year variable) as well as the age of the victims.

Across all economic sectors except the agriculture sector, the year variable is less than one (the result is not significant for the wholesale sector), indicating a significant reduction in the trend of fatalities over time. Only in the agriculture sector do we observe a slight significant increase in the fatalities over time. Compared to younger workers aged 55 and under, the risk of fatalities is significantly higher for workers aged 55 to 64 in all sectors except the agriculture

sector. The risk is almost three times higher in the construction, wholesale and other sectors and two times higher in the transport and the industry sectors. The risk of fatalities increases for workers aged over 65 in all five high-risk sectors. Compared to the workers aged under 55, the risk of fatality is six times higher in wholesale, and almost six times higher in the industry sector. The risk is roughly four times higher in the construction and transport sectors and three times higher for older workers in the agriculture sector. Formal interaction tests revealed that in each economic sector there were no differences in the trends of fatalities across workers of different ages.

TABLE 4.3 GROUPED LOGISTIC REGRESSION OF FATALITIES BY ECONOMIC SECTORS (HSA), 2004–2017

Variables	Agriculture	Industry	Construction	Transport	Wholesale	Other
Year	1.03*	0.93**	0.98	0.93*	1.00	0.94*
Workers < 55 (Ref)	1	1	1	1	1	1
Workers 55-64 yrs	1.26	2.09*	2.78***	1.75	2.66*	2.67**
Workers 65+ yrs	3.03***	5.69**	3.78**	4.42**	6.13**	2.16

Source: Health and Safety Authority Statistics, 2018.

Note: *** p<0.001, ** p<0.01, * p<0.05

4.5 CIRCUMSTANCES OF FATAL INJURIES

We use the European Statistics on Accidents at Work (ESAW) typology of accidents to report in Table 4.4 the deviation or abnormal event that was associated with the fatal accident. We report these events for the five high-risk sectors and other sectors and across different age groups of workers to see if older workers have been more likely to experience some specific events than their younger counterparts in the same economic sector. In all sectors except agriculture, we report only the circumstances for workers under 55 and those aged 55 and over, as the number of cases is quite small. Across all economic sectors and age groups, fatalities are mainly due to fall/breakage/collapse of a material agent (a tool, instrument or object) – for example, an object falling on the victim (type 1) – and loss of control of a machine, vehicle, tool, handling equipment or animal – for example, a farmer losing control of a tractor, which overturns (type 2). In the agriculture sector, almost 60 per cent of the fatalities among older workers are due to loss of control, while the figure is 46 per cent and 35 per cent for workers aged 55 to 64 and those under 55 respectively. We find a similar age-pattern distribution in the industry sector where loss of control is relatively more frequent among older workers than among younger workers. Finally, in the wholesale and construction sectors, we note that events such as breakage or fall (type 1) are also relatively more frequent among older workers than among their younger counterparts.

TABLE 4.4 CIRCUMSTANCES OF WORKER FATAL INJURIES BY AGE GROUP AND ECONOMIC SECTORS (%), 2014–2017 (HSA)

	Age	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Total	N
Agriculture	<55	24.6	35.4	13.8	2.3	12.3	11.5	100	130
	55-64	35.6	45.8	10.2	3.4	3.4	1.7	100	59
	65 plus	21.7	57.5	14.2	4.7	0.9	0.9	100	106
Industry	<55	36.4	31.8	6.1	7.6	15.2	3.0	100	66
	55-64	15.8	63.2	0	15.8	5.3	0	100	19
Construction	<55	34.1	22	28.6	1.1	13.2	1.1	100	91
	55-64	42.9	20	25.7	5.7	5.7	0	100	35
Retail/ Wholesale	< 55	40.9	40.9	4.5	4.5	9.1	0	100	22
	55-64	77.8	22.2	0	0	0	0	100	9
Transport	<55	24.3	40.5	13.5	10.8	10.8	0	100	37
	55-64	16.7	38.9	33.3	5.6	0	5.6	100	18
Other sectors	< 55	20	46	12	10	8	4	100	50
	55-64	16.7	33.3	11.1	22.2	16.7	0	100	18
All sectors	< 55	29	33.8	15.2	4.8	12.1	5.1	100	396
	55-64	32.4	36.7	15.1	8.6	5.8	1.4	100	139
	65 plus	24	56.8	13.6	4.0	0.8	0.8	100	125

Source: HSA Fatality Database.

Note: 1 = Breakage, bursting, splitting, slipping, fall, collapse of material agent; 2= Loss of control (total or partial) of machine, means of transport or handling equipment, hand-held tool, object, animal; 3 = Slipping, stumbling and falling, fall of persons; 4 = Shock, fright, violence, aggression, threat, presence; 5 = Other; 6 = No information.

4.6 SUMMARY

This chapter summarised HSA statistics on workplace fatalities, and explored the covariance between age and occupation on one hand, and fatality rates on the other. Fatalities are heavily concentrated in three sectors: agriculture, forestry and fishing; construction, and industry. We previously showed how these sectors, especially agriculture, have a significant portion of older workers.

We presented figures on the fatality rates of older workers. Although most fatalities occur among workers under 55, the rate of fatalities per 100,000 workers is highest for workers over 65. In an effort to untangle the difference between sectors and age groups, we used regression methods to estimate the risk of fatality. Workers over the age of 55 have higher odds of experiencing a fatality, in all economic sectors. Fatal injuries have declined over time in all sectors except agriculture, and the models show that the trends do not differ significantly by age. These results suggest a continued need to focus efforts to prevent fatal injuries at work to older workers.

CHAPTER 5

Conclusion

This study examined the working conditions and retention of older workers in the Irish labour market. We drew on Irish data from the European Working Conditions Survey and the Labour Force Survey to explore the trends in employment levels of older workers in Ireland, aspects of job quality and the patterns of early exit from work across occupations and sectors. We were particularly interested in identifying the work-related factors that enable older workers to participate longer in the labour market. In terms of working conditions, a key issue of concern from a health and safety perspective is that older workers experience higher levels of work-related fatalities. Therefore we analysed 14 years of fatality data from the Health and Safety Authority to examine trends over time and to model fatality rates by age within sectors.

Consideration of the sustainability of work and the working conditions of older workers is timely. Active Ageing is a major policy goal in the *Europe 2020* strategy, which aims to increase work participation to 'raise employment and productivity', but also to foster wellbeing and 'intergenerational solidarity'.²⁶ There is also a strong imperative across Europe to increase employment among older workers to contribute to the sustainability of welfare systems (European Commission, 2004). At a national level, the *National Positive Ageing Strategy* set 'inclusive employment options' as a key national goal. Putting in place the working conditions that allow older workers to work healthily and safely is an important piece of the structure needed to support longer working.²⁷

²⁶ <https://ec.europa.eu/eurostat/documents/3217494/5740649/KS-EP-11-001-EN.PDF/1f0b25f8-3c86-4f40-9376-c737b54c5fcf>

²⁷ Other important dimensions such as pension policy, social welfare supports and healthcare policy are beyond the scope of the current study.

5.1 WORKING CONDITIONS OF OLDER WORKERS

Older workers increased their participation in the Irish labour market over the last ten years. They have become an increasingly important demographic in the labour market, since younger cohorts have reduced their participation in employment, due to longer educational careers and the effects of the Irish recession. The retention rate of older workers is also significantly higher than the OECD average, although the gap is narrowing as the OECD rate rises. Despite this positive trend, there is room to increase participation further, especially among women.

At an aggregate level, the working conditions of older workers compare favourably to those of other workers, but with some notable exceptions. For this analysis we compared to younger workers two groups of older worker: those aged 55 to 64, and those aged 65 and over.

In terms of contract type, self-employment is much more common among older workers. Among employees, temporary contracts are relatively uncommon among those aged 55 to 64 years, but those aged 65 and over have a higher rate of temporary employment than other workers. Further research is needed to explore the processes behind this deterioration in conditions.

Older workers are less likely to work in shifts (Figure 2.9) or at night (Figure 2.10). Older workers report better subjective health (Figure 2.11) and are less likely to believe that their health and safety is at risk due to work (Figure 2.12). Further, older workers are more likely to suggest that their working conditions affect their health positively (Figure 2.13). Perceived job longevity, i.e. agreeing that they could continue to work in their current (or similar) job up to the age of 60 or for another five years, also increases with age. Workers over the age of 65 are an exception to this finding, but this may be the product of *social ageing*, i.e. social and organisational norms around retirement age, since the perception of the ability to continue working drops sharply for this age group.

The annual injury rates fluctuate between years, but show that older workers have comparably low rates of injury when compared to younger workers. Further, a more detailed analysis shows that, when industrial sector, working hours and other job conditions are controlled, it is the youngest workers who are most at risk of injury (Russell et al., 2015).

Given the cross-sectional nature of the data, it is possible that differences in job quality are in part shaped by the 'healthy worker' effect (see limitations in section 5.5). The aggregate conditions of older workers are also likely to mask considerable differences across occupations and sectors. Therefore we analysed how perceived

longevity differs across different groups of workers. We found that craft and service workers are the most negative about their job longevity. Net of occupation and sector, workers who feel that their health and safety is at risk at work are more pessimistic about their ability to work longer, which underlines the link between occupational safety and health and longevity in employment. Good work-life balance is also associated with positive perceptions of career longevity.

5.2 RETENTION RATES ACROSS INDUSTRIES AND SECTORS

How well do the perceptions of job longevity reflect actual patterns of worker retention? We turned to the Labour Force Survey to explore the occupations and sectors that best retain older workers. We did this by estimating the proportion of the cohort aged 55 to 59 years that are still employed at age 60 to 64 years. We did this by calculating the number of employees currently aged 60–64 with a job tenure of five years or more as a percentage of employees aged 55–59 five years previously, which is the method used by the OECD.

Regarding overall retention, we found that Ireland has a higher rate than the OECD average, and that the rate rose steadily since 2012 for both men and women (Table 3.2). However, the retention rate for men experienced a minor decline in 2018.

Regarding retention by sector, we showed that the agricultural and construction sectors have particularly high retention rates of older workers. These rates remain high for construction workers even when self-employed respondents are omitted. Among employees only, retention rates are highest in the public sector and in administrative sectors.

Regarding retention in occupations, we found that managers and machine operators, occupations at either end of the social-class hierarchy, have high retention rates. When we omitted self-employed respondents, we found that older craft workers and machine operators are most optimistic about working longer, but that the rate for managers falls somewhat. Professional positions have the lowest retention rate among all occupations. These groups are likely to face rather different push and pull factors, and this was explored in the reasons for early exit.

5.3 DRIVERS OF EARLY EXIT ACROSS OCCUPATIONS AND INDUSTRIES

Despite Ireland's rising retention rates, there is a key group of early leavers: people currently not employed who left their last job aged 55–59.²⁸ Half of this group say they left due to retirement; however, a significant portion left work involuntarily due to dismissal, an illness or disability, or to take care of family.

We found significant occupational and sectoral differences between those who retire early and those who list one of the non-retirement reasons. Regarding occupations, leavers who previously held manual and low-skilled jobs are more likely to have left for non-retirement reasons, particularly job loss and illness/disability, than retirement reasons, compared to managers and professionals. We also found sectoral differences in the type of exit experienced by early leavers. Workers in the construction, wholesale/retail and accommodation sectors were more likely to leave for non-retirement reasons than retirement reasons, when compared to industry-sector workers. However, early leavers from the public sector were more likely to leave for retirement than non-retirement reasons.

We found few gender differences in the reasons for early leaving, except that women were five times more likely than men to leave employment for family care, when compared to retirement. This suggests that care obligations are particularly likely to affect older women's decision to leave work early.

Lastly, within our restricted sample (early leavers aged 55–59 years), non-retirement factors are more common among 'younger' early leavers (i.e. those aged 55–56 years).

We repeated this analysis using a broader definition of early leavers, encompassing those aged 55–64 years. Extending the age group in this way increases the proportion of workers that define their exit as retirement. However, the same set of factors are associated with exits due to job loss, family care and illness.

²⁸ This analysis was confined to those who had left their last job in the last eight years.

5.4 FATAL INJURIES AT WORK

Fatal injuries are thankfully uncommon among all workers in Ireland and therefore will not influence overall patterns of retention by age. Nevertheless, the severity of the outcome means that the higher incidence of fatal injury among older workers is a matter of concern. We sought, therefore, to untangle the higher rates of fatalities among older workers from their concentration in higher-risk occupations and sectors, namely farming and construction.

We found that rates of injury and fatality have declined gradually since 2004. Although the incidence of fatal injury is small overall, it is concentrated in agriculture, construction and industry, which are sectors with a high concentration of manual jobs. However, sector differences do not fully explain differences between age groups. Workers aged 55–64 are still almost twice as likely to experience a fatality as workers under 55 when economic sectors are held constant. Further, when economic sectors are controlled, workers aged over 65 are almost four times more likely to experience a fatality than workers under 55. Beyond age differences, sectors have their own impact on worker fatalities, although this sector impact affects all age groups. Construction, agriculture and transport all had significantly higher rates of fatality than ‘other’ sectors. Continued efforts to reduce risks of fatal injury are therefore important.

The difference between age patterns in fatal and non-fatal injuries suggests that, while older workers are better at avoiding accidents, when they do occur the physical impact can be more serious. This is consistent with international research (EU-OSHA, 2016a; Robertson and Tracey, 1998). However, due to different sources and controls, in our study the results are not strictly comparable.

5.5 LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

Our findings contain two important limitations. First is the cross-sectional nature of the data. Although our research challenges assumptions about chronological ageing, we cannot dispel such theories completely without longitudinal data. We show that older workers, as a group, report better subjective health outcomes when compared to younger workers, as a group. However, this process may stem from a selection effect where ‘older workers’ become composed mostly of workers who had safe working conditions and a less stressful experience of work throughout their careers. In this way, former workers who experienced poor health and working conditions along the life course may have systematically left the labour market for a range of reasons, leaving behind a core group of ‘stayers’ who appear healthier.

Second, although the data on fatalities is split by occupation and sector, it does not consider other worker information that could explain the variance between fatal injury and age, such as hours worked, shift work, night work, access to training or other work demands. Thus the correlations between age and fatality should be read cautiously.

5.6 POLICY IMPLICATIONS

Extending working lives has been identified as an important element of public policy to address the needs of an ageing population. The Department of Public Expenditure and Reform (2016) predicts that expenditure on state pensions and welfare-related schemes will increase from almost €7 billion in 2016 to €8.7 billion by 2026 due to ‘demographic pressure’. The retention of older workers is also seen as contributing to active ageing and participation in economic life. Yet longer employment is only sustainable if the working conditions are compatible with the needs of older workers. It is these working conditions and their interaction with workers’ health and safety that we are concerned with in this report. Issues such as pension reform are highly relevant to the employment and retirement decisions of older workers but are beyond the scope of the current study.

Early leavers are not a homogenous group. They typically cite a range of voluntary and involuntary reasons for leaving work. Since a significant portion of younger leavers cite job loss, policies designed to retain older workers should be considered as a possible form of protection; for example, employers could be encouraged to offer part-time work options, redeployment options, or other compromises that keep older workers employed. Access to training and life-long learning opportunities are also important so that the skills of older workers do not become obsolete, making them more vulnerable to job loss (Martin, 2018).²⁹

Another source of early leave is illness and disability. We also find that workers who believe their health and safety is at risk because of the jobs they occupy view their occupations as unsustainable at older ages. These findings highlight the importance of promoting working conditions that protect workers’ health and safety. As outlined in Chapter 1, the association between work conditions and health does not begin in older age groups. Exposures to risks earlier in a career, whether physical, psychological, chemical, etc, can manifest themselves in poorer health outcomes later in life and indeed can accumulate over the life course. The strong link between occupation and exits due to illness and disability highlights the potential role of working conditions in health-related early exits.

²⁹ For older workers who lose their jobs and wish to re-enter employment, policies to prevent age-related discrimination by employers and access to active labour-market policy interventions are crucial (EU-OSHA et al., 2017; OECD, 2006, Martin, 2018; Slowey and Zubrzycki, 2018). However, this is not an issue covered in our study.

The study also highlights the potential health-enhancing effects of working longer. While biological studies show that continued cognitive challenges and physical activity are important for maintaining function (Chapter 1), our analysis of the European Working Conditions Survey (EWCS) shows that many older workers themselves also perceive a health benefit to working.

Beyond risk prevention, sustaining employment among older workers also requires accommodating those with health or disability-related limitations and assisting returns to work for those who have been absent. This can include reduced working hours, adjustment to workplace designs, redeployment away from hazardous positions to work that is less demanding, and assistance to return to work for those who have been absent due to sickness/disability. Policy reviews in this area suggest that the systems which work best combine the following features: early intervention; a coordinated approach across policy areas (employment, public health, occupational safety and health and social security); an inclusive system that covers all workers; a tailored approach for individuals at the organisational level, and co-ordination between relevant actors (EU-OSHA et al., 2017).

Another key source of early exit, especially for women, is family care. As with other interventions, policies to accommodate family and other non-work demands are important across the life-course. Older women cannot be ‘retained’ in the labour force if they have already exited in their child-bearing years (Chapter 1). While few of the cohort of women currently aged 55 to 70 will have been directly affected by the Marriage Bar abolished in 1973, many more are likely to have been affected by the gender culture in the late 70s and 80s which excluded women from employment.³⁰

For older workers, caring responsibilities for a partner or elderly parents can create challenges for remaining in employment; we found that 7 per cent of those leaving between the ages of 55 and 59 years left because of care responsibilities, and women were five times more likely to exit for this reason than men. We also found that poor work-life balance was linked to a belief that working until age 60 was unsustainable. Previous longitudinal research has shown that having care responsibilities is significantly associated with subsequent exits from employment for older workers (Bolin et al., 2008; King & Pickard, 2013; Carmichael et al., 2010). Therefore, policies that subsidise or provide childcare and adult-care options to households are also relevant to extending working lives. Access to flexible working options – such as part-time, reduced hours, leave schemes, flexibility in start and finishing times – are also important to allow older and younger workers to better balance their caring and work demands.

³⁰ Legislation outlawing employment discrimination on the basis of sex was introduced in 1977. See O’Connor, 1998 and Russell et al., 2018 for further discussion of women’s employment and social attitudes in the latter part of the 20th century.

Reducing working hours can also play an important role in smoothing the transition from work to retirement. Attitudinal research (European Commission, 2012a; Fahey & Russell, 2001; Slowey and Zubrzycki, 2018) suggests that many workers would prefer a gradual reduction in working hours as they approach retirement and believe that the absence of such options that do not risk reducing pension entitlements is one of the main barriers to working longer.

This discussion along with the detailed reviews by international bodies such as the EU-OSHA and the OECD highlight that organisational practices to retain older workers should not begin when workers reach some chronological age threshold. The ability to work longer is associated with a set of working conditions that are relevant throughout working life. Such a long-term view is necessary if policy goals of creating more sustainable employment are to be achieved.

REFERENCES

- Alavinia, S. M. and Burdorf, A. (2008). Unemployment and retirement and ill-health: a cross-sectional analysis across European countries. *International Archives of Occupational and Environmental Health*, 82(1), 39-45.
- Armstrong-Stassen, M. and F. Schlosser (2011). Perceived organizational membership and the retention of older workers. *Journal of Organizational Behavior* 32(2), 319-344.
- Barnay, T. (2006). Health impact on the labour force. For IRDES (Institute of Research and Documentation in Health Economics).
- Barnay, T. and Debrand, T. (2006). Effects of health on the labour force participation of older persons in Europe. *Health Econ Letters*, 109.
- Blekesaune, M. and Solem, P.E. (2005). Working conditions and early retirement: a prospective study of retirement behavior. *Research on Ageing*, 27(1), 3-30.
- Bonsang, E. and Klein, T.J. (2012). Retirement and subjective well-being. *Journal of Economic Behavior & Organization*, 83(3), 311-329.
- Börsch-Supan, A. (2013). Myths, scientific evidence and economic policy in an aging world. *The Journal of the Economics of Ageing*, 1, 3-15.
- Carmichael, F., Charles, S., and Hulme, C. (2010). Who will care? Employment participation and willingness to supply informal care. *Journal of Health Economics*, 29(1), 182-190.
- Costa, G. (2003). Shift work and occupational medicine: an overview. *Occupational Medicine*, 53(2), 83-88.
- Crawford, J. O., Graveling, R. A., Cowie, H. A. and Dixon, K. (2010). The health safety and health promotion needs of older workers. *Occupational Medicine*, 60(3), 184-192.
- CSO (2015). QNHS Pension Provision. CSO statistical release.
- CSO (2013). Population and Labour Force Projections 2016-2046.
- Department of Business, Enterprise and Innovation (2014). *Action Plan for Jobs*, <https://dbei.gov.ie/en/Publications/Publication-files/Action-Plan-for-Jobs-2014.pdf>
- Department of Public Expenditure and Reform DPER (2016). *Report on the Interdepartmental Group on Fuller Working Lives*, Dublin.
- Department of Health/Healthy Ireland (2013). *National Positive Ageing Strategy*, https://health.gov.ie/wp-content/uploads/2014/03/National_Positive_Ageing_Strategy_English.pdf
- Department of Justice (2015). *Employment Strategy for People with Disabilities 2015–2024*, <https://tinyurl.com/p2vcz5s>
- Department of Social Protection (2013). *Statistical Information on Social Welfare Services 2013*.

- Department of Social Protection (2014). Statistical Information on Social Welfare Services 2014.
- Disney, R., Emmerson, C. and Wakefield, M. (2006). Ill health and retirement in Britain: A panel data-based analysis. *Journal of Health Economics*, 25(4), 621-649.
- Ebbinghaus, B. and Hofäcker, D. (2013). Reversing early retirement in advanced welfare economies. A paradigm shift to overcome push and pull factors. *Comparative Population Studies*, 38(4).
- European Foundation (2012). *Sustainable work and the ageing workforce*, Publications Office of the EU.
- European Commission (1995). Resolution on the Employment of Older Workers, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:41995X0902&qid=1554731582391&from=EN>
- European Commission (2004). Increasing the employment of older workers and delaying the exit from the labour market, COM (2004) 146 final, 3 March 2004.
- European Commission (2010). *Active ageing and solidarity between generations: A statistical portrait of the European Union 2012*, <https://ec.europa.eu/eurostat/documents/3217494/5740649/KS-EP-11-001-EN.PDF/1f0b25f8-3c86-4f40-9376-c737b54c5fcf>
- European Commission (2010). EUROPE 2020: A strategy for smart, sustainable and inclusive growth, <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF>
- European Commission (2012). *Special Eurobarometer 378: Active Ageing*, http://ec.europa.eu/commfrontoffice/publicopinion/archives/ebs/ebs_378_en.pdf
- EU-OSHA (2016a). The ageing workforce: implications for occupational safety and health: A research review, Luxembourg: Publications Office of the European Union.
- EU-OSHA (2016b). Rehabilitation and return to work: Analysis report on EU and Member States' policies, strategies and programmes. Luxembourg: Publications Office of the European Union.
- EU-OSHA, Cedefop, Eurofound and EIGE (2017). *Towards age-friendly work in Europe: A life-course perspective on work and ageing from EU Agencies*. Luxembourg: Publications Office of the European Union.
- Eurostat (2013). European Statistics on Accidents at Work (ESAW) Methodology, 2013 Edition, Luxembourg: Eurostat.
- Fahey, T. and Russell, H. (2001). *Older People's Preferences for Employment and Retirement in Ireland*, National Council of Ageing and Older People Report No. 67, Dublin: Oak Tree Press.
- Ferraro, K. F. and Shippee, T.P. (2009). Ageing and Cumulative Inequality: How Does Inequality Get under the Skin? *Gerontologist.*, 49:333-43.
- Gannon, B. and Davin, B. (2010). Use of formal and informal care services among older people in Ireland and France. *The European Journal of Health Economics*, 11(5), 499-511.

- Government of Ireland (2015). *Comprehensive Employment Strategy for People with Disabilities 2015-2024*, Dublin: Government of Ireland.
- Government of Ireland (2019). *Future Jobs Ireland 2019*, Dublin: Department of the Taoiseach and the Dept. of Business, Enterprise and Innovation.
- Grotti, R., Russell, H. and O'Reilly, J. (2018). Where do young people work? In *Youth Labor in Transition: 33*.
- Gruber, J. and Wise, D. (2000). Social security programs and retirement around the world. In *Research in Labor Economics* (pp. 1-40). Emerald Group Publishing Ltd.
- Halleröd, B., Örestig, J. and Stattin, M. (2013). Leaving the labour market: the impact of exit routes from employment to retirement on health and wellbeing in old age. *European Journal of Ageing*, 10(1), 25-35.
- Harris, S. and Higgins, G. (2006). A review of organisational interventions that can prevent early retirement among older workers. *Health and Safety Laboratory, Buxton), RMS/06/03*.
- Health and Safety Authority (2016). *Guidance on the Safety, Health and Welfare at Work (Reporting of Accidents and Dangerous Occurrences) Regulations 2016*, Dublin: Health and Safety Authority.
- Heitmueller, A. (2007). The chicken or the egg?: Endogeneity in labour market participation of informal carers in England. *Journal of Health Economics*, 26(3), 536-559.
- Henkens, K. and Leenders, M. (2010). Burnout and older workers' intentions to retire. *International Journal of Manpower*, 31(3), 306-321.
- Ho, J. H. and Raymo, J. M. (2009). Expectations and realization of joint retirement among dual-worker couples. *Research on Ageing*, 31(2), 153-179.
- Hudson, E., Mosca, I. and O'Sullivan, V. (2014). The Economic Wellbeing of Over 50's and their Children. *The Irish Longitudinal Study of Ageing*, p25-50.
- Karpinska, K., Henken, S, K. and Schippers, J. (2013). Retention of older workers: Impact of managers' age norms and stereotypes. *European Sociological Review*, 29(6), 1323-1335.
- Khanzode V.V., Maiti, J. and Ray, P.K. (2012). Occupational Injury and Accident Research: a Comprehensive Review, *Safety Science*, Vol. 50, (5) pp1355-1367.
- King, D. and Pickard, L. (2013). When is a carer's employment at risk? Longitudinal analysis of unpaid care and employment in midlife in England. *Health & Social Care in the Community*, 21(3), 303-314.
- Laflamme, L. and Menckel, E. (1995). Ageing and occupational accidents: a review of the literature of the last three decades, *Safety Science*, 21(2): 145-161.
- Layte, R. and McCrory, C. (2016). Social Variation in Child Health & Development: A Life-Course Approach, in *Cherishing All The Children Equally?*, 194.
- Martin, J. P. (2018). Live longer, work longer: The changing nature of the labour market for older workers in OECD countries. [IZA Discussion Papers](#), 11510, Institute of Labor Economics (IZA).

- McCarthy, J. (2010). Republic of Ireland: Workforce Profile. Sloan Center on Aging & Work at Boston College. *Workforce Profile No 20*: March 2010.
- McCorry, C, Henretta, J.C., O’Connell, M. and Kenny, R.A. (2018). Intergenerational Occupational Mobility and Objective Physical Functioning in Mid-life and Older Ages. *Journals of Gerontology (Series B): Psychological Sciences and Social Sciences*. 73(2): 279-291.
- McGarrigle C.A., Cronin, H. and Kenny, R.A. (2014). The impact of being the intermediate caring generation and intergenerational transfers on self-reported health of women in Ireland. *International Journal of Public Health*. 59(2): 301-8.e.
- McGuinness S., Bergin, A., Keane, C. and Delaney, J. (2018). *Measuring Contingent Employment in Ireland*, Research Series No. 74, Dublin: ESRI.
- Mitchell, O.S. (1988). The relationship of age to workplace injuries. *Monthly Labor Review*, 111:8-13.
- Mosca, I. and Barrett, A. (2011). Retirement and Labour Market Participation. *Fifty Plus in Ireland 2011*, 219.
- Myers, S. M. and Booth, A. (1996). Men’s retirement and marital quality. *Journal of Family Issues*, 17(3), 336-357.
- Ng, T.W. and Feldman, D.C. (2013). Employee age and health. *Journal of Vocational Behavior*, 83(3), 336-345.
- Nilsson, K. (2016). Conceptualisation of ageing in relation to factors of importance for extending working life – a review. *Scandinavian Journal of Public Health*, 44(5), 490-505.
- Nivakoski, S. and Barrett, A. (2017). *Estimating, and interpreting, retirement income replacement rates*, ESRI Working Paper No. 575.
- Nolan, A., & Barrett, A. (2019). The role of self-employment in Ireland’s older workforce. *The Journal of the Economics of Ageing*, 100201.
- O’Connell, P.J. (2013). ‘Cautious adjustment in a context of economic collapse: The public sector in the Irish crises’ in: D. Vaughan-Whitehead (ed.), *The Public Sector Shock: The Impact of Policy Retrenchment in Europe*. Geneva: International Labour Office.
- OECD (2006). Ageing and Employment Policies. Live longer work longer. OECD Publications: Paris.
- Perera, S., Sardeshmukh, S.R. and Kulik, C.T. (2015). In or Out: Job Exits of Older Workers, *Asia Pacific Journal of Human Resources* 53, 4-21.
- Rabe-Hesketh, S. and Skrondal, A. (2008). *Multilevel and longitudinal modeling using Stata*. STATA press.
- Radl, J. (2013). Labour Market Exit and Social Stratification in Western Europe: The Effects of Social Class and Gender on the Timing of Retirement, *European Sociological Review*, Vol. 29, No. 3 (June 2013), pp. 654-668.
- Robertson, A. and Tracy, C.S. (1998). Health and productivity of older workers, *Scandinavian Journal of Work and Environmental Health*, Vol. 24, No. 2, pp. 85-97.

- Russell, H., Maitre, B. and Watson, D. (2015). *Trends and Patterns in Occupational Health and Safety in Ireland*, Dublin: Economic and Social Research Institute, Research Series No. 40.
- Russell, H., Maître, B. and Watson, D. (2016). *Work-related Musculoskeletal Disorders and Stress, Anxiety and Depression in Ireland: Evidence from the QNHS 2002–2013*. Dublin: Economic and Social Research Institute Research Series No. 53.
- Russell, H., McGinnity, F. and O'Connell, P.J. (2017). Gender Equality in the Irish Labour Market 1966–2016: Unfinished Business? *Economic and Social Review*, Vol. 48, No. 4, pp. 393-418, winter, 2017.
- Russell, H., Grotti, R., McGinnity, F. and Privalko, I. (2019). *Care and Unpaid Work in Ireland*, Dublin: Irish Human Rights and Equality Commission and the Economic and Social Research Institute.
- Salminen, S. (2004). Have young workers more injuries than older ones? An international literature review. *Journal of Safety Research* 35, 513–521.
- Schwatka, N.V., Butler, L.M. and Rosecrance, J.R. (2012). An aging workforce and injury in the construction industry, *Epidemiologic Reviews*, Vol. 34, No. 1, pp. 156-167.
- Shultz, K. S., Morton, K. R. and Weckerle, J.R. (1998). The influence of push and pull factors on voluntary and involuntary early retirees' retirement decision and adjustment. *Journal of Vocational Behavior*, 53(1), 45-57.
- Simonds, R.H. and Shafai-Sahrai, Y. (1977). Factors apparently affecting injury frequency in eleven matched pairs of companies. *J. Safety Res.* (9): 120-127.
- Slowey, M. and Zubrzycki, T. (2018). Living Longer , Learning Longer — Working Longer? Implications for New Workforce Dynamics, Higher Education Research Centre, DCU.
- Steiber, N. and Kohli, M. (2017). You can't always get what you want: actual and preferred ages of retirement in Europe, *Ageing & Society* , 37, pp. 352-385.
- Topa, G., Depolo, M. and Alcover, C.M. (2018). Early retirement: a meta-analysis of its antecedent and subsequent correlates. *Frontiers in Psychology*, 8, 2157.
- Tisch, A. (2015). Health, work ability and work motivation: determinants of labour market exit among German employees born in 1959 and 1965. *Journal for Labour Market Research*, 48(3), 233-245.
- Warren, A.M., & Kelloway, E.K. (2010). Retirement decisions in the context of the abolishment of mandatory retirement. *International Journal of Manpower*, 31(3), 286-305.
- Wren, M., C. Keegan, B. Walsh, A. Bergin, J. Eighan, A. Brick, S. Connolly, D. Watson and J. Banks (2017). *Projections of Demand for Healthcare in Ireland, 2015–2030: First Report From The Hippocrates Model*, Dublin: ESRI.
- Yeomans, L. (2011). An update of the literature on age and employment. *Health and Safety Laboratory, Buxton, United Kingdom*, <http://www.hse.gov.uk/research/rrhtm/rr832.htm>

DATA APPENDIX

<i>Labour Force Survey</i>	<i>We cite descriptive statistics from the Labour Force Survey (Eurostat) which capture the distribution of older workers in Ireland.</i>	Chapter 2	1998–2018
	<i>We use logistic regression to predict the reason for early exit.</i>	Chapter 3	Q4 2017-Q3 2018
	<i>We use descriptive statistics to explore retention rates of older workers.</i>	Chapter 3	Q4 2017-Q3 2018
<i>OECD Late Career Scoreboard</i>	<i>We cite descriptive statistics from the OECD Late Career Scoreboard, in an effort to compare Ireland to the OECD average.</i>	Chapter 2	2006 and 2016
<i>European Working Conditions Survey</i>	<i>We explore differences in working conditions between older and younger workers using the European Survey of Working Conditions.</i>	Chapter 2	2015
	<i>We use logistic regression to explore workers' perceived longevity of their job.</i>	Chapter 2	2015
<i>Health and Safety Authority Annual Statistics</i>	<i>We cite the annual statistics collected by the Health and Safety Authority. We use these to describe patterns of injury at work.</i>	Chapter 2	2004–2015
<i>Health and Safety Authority Fatality Statistics</i>	<i>We summarise the prevalence of fatal injuries by sector and age in Ireland. We select fatalities among workers only.</i>	Chapter 4	2014–2017

TABLE A1 RELATIVE RISK RATIOS OF EARLY EXIT TYPE RELATIVE TO RETIREMENT, INCLUDING OCCUPATION CONTROLS (EXITED AGED 55–64 YEARS)

VARIABLES	Ref: (early) Retirement		
	Model 1	Model 2	Model 3
	<i>Involuntary</i>	<i>Family leave</i>	<i>Illness or disability</i>
Ref: Male			
Female	0.80	6.37***	1.08
Age when left	0.75***	0.73***	0.77***
Ref: Managers/professionals			
Technicians	2.69***	1.81	2.90***
Clerical workers	4.10***	2.36**	1.39
Service workers	8.99***	9.36***	11.77***
Craft & Agriculture	8.96***	18.13***	10.47***
Plant operatives & Elementary workers	10.20***	14.43***	12.34***
Ref: Single			
Partner works	0.88	0.87	0.88
Partner does not work	0.74*	1.06	0.77*
Year of survey	1.16***	1.04	1.07**
Observations	3,790	3,790	3,790

TABLE A2 RELATIVE RISK RATIOS OF EARLY EXIT TYPE RELATIVE TO RETIREMENT, INCLUDING SECTOR CONTROLS (EXITED AGED 55–64)

VARIABLES	Ref: (early) Retirement		
	Model 1 <i>Involuntary</i>	Model 2 <i>Family care</i>	Model 3 <i>Illness and disability</i>
Ref: Male			
Female	1.07	4.04***	1.00
Age when left	0.77***	0.74***	0.79***
Ref: Industry			
Agriculture	0.46*	0.79	1.64
Construction	1.03	1.83	2.38***
Wholesale/Retail	1.21	1.89	1.91**
Transport	0.80	0.13	1.52
Accommodation	0.55	1.73	2.52***
Info/Administrative	0.33***	0.70	0.35***
Public admin	0.11***	0.03***	0.16***
Education	0.06***	0.15***	0.18***
Health	0.18***	0.65	0.90
Arts/Other services	1.23	2.24*	1.61
Ref: Single			
Partner works	0.87	0.81	0.84
Partner does not work	0.65***	1.10	0.71**
Year of survey	1.16***	1.06	1.09***
Observations	3,829	3,829	3,829

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